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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders, and Postal Orders should be made payable to Benn Brothers, Ltd.*

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A Discussion on Catalysts

IT was an extremely interesting discussion on catalysts that Professor G. T. Morgan presided over on Monday evening, in the rooms of the Chemical Society, and there was a large attendance to enjoy and benefit by it. The meeting was jointly organised by the London Section of the Society of Chemical Industry, the Chemical Engineering Group, and the Faraday Society. It was rather an achievement to get two such well-known authorities as Dr. E. B. Maxted and Dr. Eric Rideal to present papers at the same meeting. Dr. Maxted, whose articles on the nitrogen industry will be recalled by readers of THE CHEMICAL AGE, dealt with "The Specific Gravity of Catalysts," and Dr. Rideal, widely known for his studies on this subject, with "Specific Catalytic Surfaces." Various points of view emerged in the course of the discussion, and it is doubtful which proved the more interesting—the substance of the original contributions or the differences that subsequently developed in the course of debate.

Dr. Maxted's paper dealt with the selection *a priori* of probable catalysts for specific reactions, in place of selection by simple trial, and with the developments which have been made possible by advances in the knowledge of reaction mechanism since the work of Hurter, who, in 1883, first indicated the most suitable catalyst for a given reaction—copper chloride for the Deacon process—by methods other than empirical ones. It was pointed out that energy at least equal to the critical increment for a number of typical catalytic reactions becomes transitorily available in the presence of an appropriate catalyst, by virtue of the kinetics of the adsorption or association equilibrium between the catalyst and one or more components of the reacting system, and by a cycle which is known to occur and therefore does not contravene the second law of thermodynamics. Conditions and criteria for the probable activity of a catalyst for a given reaction were discussed in this light.

The maximum differential heat of adsorption of hydrogen on a metallic catalyst apparently governs the degree to which it is capable of activating hydrogen, and Dr. Maxted referred to three reactions of different degrees of difficulty—the hydrogenation, respectively, of benzene, of ethylene, and of a nitro-compound. This maximum heat is, in any case, greater than the critical increment required for activation. Other reactions for which the necessary data are known, particularly dehydration and the catalytic formation of ketones from fatty acids, were discussed from the same standpoint.

Studies in Activated Carbon

A STUDY of the production of activated carbon from various coals, conducted by the United States Bureau of Mines, Washington, has resulted in the finding that the best and most active carbons for gas-mask and other uses are obtained from anthracite coals having the highest carbon content and the lowest ash, volatile matter, and sulphur content. The production of a good quality of activated carbon from cheap and readily available raw materials by inexpensive processes is of great importance, not only from the standpoint of war-time needs, but also because activated carbon is now of great value in many industrial operations. The war greatly stimulated the study of methods for producing activated carbon. It was shown that a satisfactory quality could be produced not only from coconut and other nut shells, but also from anthracite coal and from anthracite or other carbon dust mixed with pitch, briquetted, baked, and activated.

The present study by Messrs. A. C. Fieldner, R. E. Hall, and A. E. Galloway, is a continuation of that work. Although industrial concerns have made extensive investigations on the subject, complete information is not yet available on methods for producing activated carbon from cheap raw materials, such as the various coals, on the relative values of such materials for the purpose, and on the properties of the activated carbon obtained. The materials studied included coconut shells, kukui nut shells, various woods, lignite, bituminous coals from a number of states,

anthracite, carbon black, lamp black, petroleum coke, and pitch coke.

In the course of the investigation, it was found that when coals containing considerable amounts of volatile matter are to be used as a source of activated carbon the temperature during primary carbonisation must be kept between 650° to 750° C. as a maximum. To obtain a dependable activated carbon, coals must be ground, mixed, and briquetted. The high-volatile coals must be given a preliminary carbonisation before briquetting, when a binder, such as coal-tar pitch, is to be used. The briquetted material is carbonised up to a maximum temperature of 900° C. Straight-run high-temperature coal-tar pitch of low melting point has been found satisfactory as a binding material. Blends of caking coal with non-caking material may be briquetted without a binder. A small amount of carbohydrate may be added to coals, with a resulting increase in general activity and particularly in the retentivity.

Lignites, sub-bituminous coals, natural cokes, some bituminous coals, pitch coke, and petroleum coke did not yield satisfactory absorbent carbons by the methods tried. The three products (Ohia lehua wood, guava wood, and kukui nut shells) were decidedly inferior to coconut shells. Although the rate of activation and the ease of control of the process with coconut-shell carbon proved advantageous, the carbon is not necessarily better and the activation is no more certain than with suitable coals.

Complete details of this investigation are given in Bureau of Mines Technical Paper 479.

Chemicals for Argentina

In view of the British Empire Trade Exhibition, which the Prince of Wales will open at Buenos Aires in March, the official report on "Economic conditions in the Argentine Republic" appears at an appropriate moment. It is prepared by Mr. H. O. Chalkley, commercial Counsellor to the British Embassy at Buenos Aires, and it gives a general survey of the commercial conditions and methods of the country, and emphasises, as all these reports do, the importance of efficient marketing methods and suitable direct representation. What, however, will appeal to our readers most is the information relating to chemical imports. These amount to a considerable quantity, and as compared with the trade now done by the United States, Germany, and other countries, British exports to the Argentine leave considerable room for expansion. It is to secure this increased business that the British Empire Trade Exhibition is being held at Buenos Aires, and the result will depend on the efforts of British chemical manufacturers and exporters to make their products better known there.

As already announced, the firm of Benn Brothers, Ltd. (publishers of THE CHEMICAL AGE), have decided to send a special representative to South America for the occasion, with the object of assisting exhibitors and of making the requirements and the possibilities of the Argentine better understood over here. Mr. John Benn, who has been commissioned to represent the firm, left Southampton on Sunday by the famous German liner, the *Bremen*, and he is due at New York before the end of this week. He will attend a New York luncheon given by American editors, and after a visit to Princeton, the university where he was formerly a student, and a number of business calls, he will proceed by stages to South America. One matter that will engage his attention is the completion of arrangements for the publication of a new trade journal, to be printed in Spanish, for the purpose of making known British products throughout Latin America. The production of this journal is being planned by Benn Brothers, Ltd., in conjunction with the Federation of British Industries, and a group of well-known authorities on South American trade, including Mr. J. M. Eddy (director of the Buenos Aires Great Southern Railway, the Bank of London and South America, etc.), Mr. C. M. Giveen (British Empire Trade Exhibition at Buenos Aires), Mr. A. C. Rouse (Federation of British Industries), and Mr. Ashley Brown. Several members of this group will visit Buenos Aires shortly and discussions will take place with experts on the spot, to ensure the fullest support for the project in South America. The title proposed for the new journal is *Industria Britanica*.

The Calendar

Feb.		
9	Institute of Metals (Scottish Section): "Gas Refinement of Metals and Alloys." D. R. Tullis. 7.30 p.m.	39, Elmbank Crescent, Glasgow.
10	Society of Chemical Industry (Birmingham and Midland Section): "The Manufacture of Heavy Steel Forgings for the Chemical Industry." J. H. S. Dickenson. 6.45	Chamber of Commerce Buildings, New Street, Birmingham.
10	Institute of Fuel: "Fuel Control in the Iron and Steel Industries." Dr. G. V. Slottman. 7 p.m.	Engineers Club, Manchester.
10	Institution of Petroleum Technologists. 5.30 p.m.	Royal Society of Arts, John Street, Adelphi, London.
10	Institute of Metals (Swansea Section): "Application of Copper to the Building Trade." Julius Frith. 6.15 p.m.	Y.M.C.A., Swansea.
10	Institute of Metals (London Section): "Stress in Metals." A. Wragg. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
12	Optical Society. 7.30 p.m.	Imperial College of Science, London.
12	Society of Dyers and Colourists (West Riding Section): "Insulation against Heat Losses and Prevention of Condensation." W. S. Siddons.	Bradford.
12	Oil and Colour Chemists' Association. Joint Meeting with Borough Oil and Colour Students' Association.	London.
12	Electroplaters' and Depositors' Technical Society. Joint Meeting with the Institute of Metals: "Electrolytic Processes in Metallurgy." H. J. T. Ellingham.	Rooms of Motor Manufacturers and Traders, Ltd., London.
13	Institute of Metals (Sheffield Section): "The Applications of High-Nickel Nickel-Copper Alloys and Pure Nickel in Industry." N. C. Marples. 7.30 p.m.	University, Sheffield.
13	Chemical Engineering Group: "Silver and its Application to Chemical Plant." Donald McDonald. 8 p.m.	Burlington House, Piccadilly, London.
13	Institute of Chemistry and Society of Chemical Industry (Yorkshire Sections): Dinner Dance.	Leeds.
13	Society of Dyers and Colourists (London Section): "Bleaching, Dyeing and Finishing Processes and their Effect on Finished Goods." A. J. Hall.	London.

Solvent Extraction of Oleaginous Substances

Graphical Determination of Weight of Oil and Residues

THE process of extracting oil from oil bearing substances by the application of solvents thereto is used in numerous manufactures. On broad general lines the procedure consists in intimately mixing in suitable apparatus a solvent, benzene or the like, with the material from which the oil is to be removed, partially or wholly as desired. The oil is dissolved by the solvent and subsequently recovered after the evaporation of the latter. The de-oiled residues are utilised or discarded according to their nature. The operation is accompanied by an apparent diminution in weight of the original charge of material, in consequence of the reduction in its oil content.

It is of advantage to be able to estimate rapidly the resultant weight of the extracted residues and the yield of oil therefrom. The chart (Fig. 1) illustrates a graphical method of determining this data by purely mechanical means. The chart is a substitute for a calculation which, although of an elementary nature, has been observed to cause some confusion to those unfamiliar with it.

In brief, a weight of a certain substance is known to contain a definite percentage of oil which it is desired partially to extract in order to yield a residue containing a predetermined lower oil content. It is required to compute the weight of the oil to be removed in order that the residues may comply with the specified analysis. The weight of the residues is the product of the original weight of the substance and the ratio of the initial and final percentages of solids present, so, upon taking logarithms, the equation reads :—

(1) Log (residues) = Log 2240 + log (initial % solids) − log (final % solids).

A charge of 1 ton has been arbitrarily selected as the initial weight of material treated.

Construction of the Line Chart

Begin by choosing the limiting percentage of solids present before and after extraction. It has been assumed in the present instance that 75 per cent. to 90 per cent. of solids may be present in the raw material, and 90 per cent. to 100 per cent. in the residues, and these ranges satisfy many cases commonly encountered. All the scales are logarithmically graduated on the lines of a slide rule, but in view of the limited range of values, a more open scale than that afforded by a slide rule can be adopted advantageously.

A unit of logarithms may be defined as the difference in the logarithms corresponding to the numbers 1 to 10, 10 to 100, etc., and a logarithmically divided scale may be drawn in which the proportion of a unit of logarithms represented by a length of one inch is arbitrarily chosen. By way of illustration the upper edge of a 10 in. (250m/m.) rule has a scale of approximately one inch, representing 0·2 of a unit of logarithms, whilst on the lower edge one inch corresponds to 0·1 of a unit.

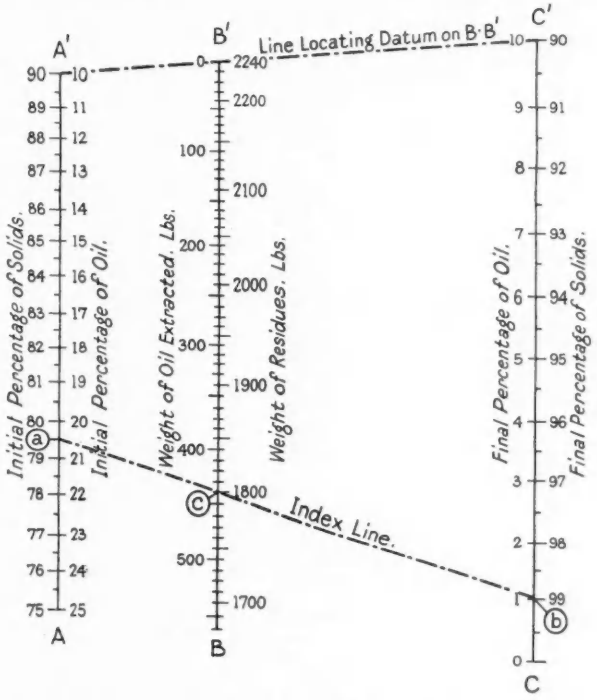
For the purpose of preparing the line chart described, scales of one inch equals 0·01, and 0·005 of a unit of logarithms are employed on the axes AA^1 and CC^1 respectively.

Next tabulate the data as below.* Only the principal markings on the scales have been tabulated and an identical procedure allows other points to be located.

The graduations are not uniformly spaced and the position of each requires to be calculated independently of its neighbours.

For many practical purposes the error introduced by uniformly subdividing the distance between the principal markings could be ignored, thus rendering the graduation of the scales less tedious.

Draw the parallel and vertical axes AA^1 and CC^1 at any convenient distance apart, say 7 inches. Graduate the outer



edge of AA^1 upwards, in terms of the percentage of solids initially present, taking the positions of the markings from the figures in Row (4). Use the figures in Row (8) to locate the graduations on the outside of the axis CC^1, commencing from the top.

Space the axis BB^1 so that the following relationship with its neighbours is preserved :—

$$\frac{\text{Distance between A and B Axes}}{\text{Distance between A and C axes}} = \frac{\text{Scale on CC}^1}{\text{Scale on AA}^1 + \text{Scale on CC}^1}$$

$$\text{Distance between A and B axes} = \frac{7 \times 0{\cdot}005}{0{\cdot}01 + 0{\cdot}005} = 2{\cdot}33 \text{ inches.}$$

The scale borne by the axis BB^1 is equal to the sum of the scales on the adjacent axes, namely, 0·001+0·005, hence one inch on BB^1 corresponds to 0·015 of a unit of logarithms. The spacing of the principal graduations is given in Row (12), but a datum must be established before they can be inserted.

* Tabulated Values Assuming Initial Weight of 1 Ton of Material.

(1)	Original solids present ..... Per cent.	75	76	77	78H	79	80	82	84	86	88	90
(2)	Log (% Initial Solids)	1·8751	1·8808	1·8865	1·8951	1·8976	1·9031	1·9138	1·9342	1·9345	1·9445	1·9542
(3)	Difference taking 75% as Datum	0·0000	0·0057	0·0114	0·0170	0·0225	0·0280	0·0387	0·0492	0·0594	0·0694	0·0791
(4)	Distance from A to Graduations on AA^1— Scale 0·01 ..... *Inches*	0	0·57	1·14	1·70	2·25	2·80	3·87	4·92	5·94	6·94	7·91
(5)	Solids present in Residues ..... Per cent.	90	91	92	93	94	95	96	97	98	99	100
(6)	Log (% Solids in Residues)	1·9542	1·9590	1·9638	1·9685	1·9731	1·9777	1·9823	1·9868	1·9912	1·9956	2·0000
(7)	Difference taking 100% as Datum	0·0458	0·0410	0·0362	0·0315	0·0269	0·0223	0·0771	0·0132	0·0088	0·0044	0·0000
(8)	Distance from C^1 to Graduations on CC^1— Scale 0·005 ..... *Inches*	9·16	8·20	7·24	6·30	5·38	4·46	3·54	2·64	1·76	0·88	0
(9)	Weight of Residues ..... Lbs.	2,240	2,100	2,050	2,000	1,950	1,900	1,850	1,800	1,750	1,700	1,650
(10)	Log (Residues)	3·3502	3·3222	3·3118	3·3010	3·2900	3·2788	3·2672	3·2553	3·2430	3·2304	3·2175
(11)	Difference taking 2,240 lbs. as Datum	0·0000	0·0280	0·0384	0·0492	0·0602	0·0714	0·0830	0·0949	0·1072	0·1198	0·1327
(12)	Distance to Graduations on BB^1—Scale 0·015 *Inches*	0	1·87	2·56	3·28	4·01	4·76	5·53	6·33	7·15	7·99	8·85

It will have been noted that the constant term log 2240 has hitherto been ignored, but its presence is automatically registered in the selection of the datum.

If no oil be extracted the original material undergoes no change and the same percentage of solids is present before and after treatment.

Draw an index line joining the markings of 90 per cent. solids on the axes AA^1 and CC^1 and note the point of intersection with BB^1, which is the marking for 2240 lbs. thereon. From this datum the axis can now be graduated, and it is obvious that the choice of the initial weight is optional and any other may be selected.

It is assumed that the total weight represents the sum of the solids and oil present and remains constant. No allowance is made for traces of water vapour that may be carried over with the oil, if a hot process is employed. Upon this assumption, by taking differences, duplicate scales indicating the percentages and weights of oil may be added to the axes.

An example showing the manner in which the chart is used is depicted on the figure. Initial solids present 79·5 per cent. (oil by difference 20·5 per cent.); solids in residues 99 per cent. (oil 1 per cent.). Draw an index line from 79·5 (*a*) on AA^1 to 99 per cent. (*b*) on CC^1. The intersection with BB^1 at (*b*) indicates a weight of 1,800 lbs. of residues containing 99 per cent. of solids and 1 per cent. of oil and a yield of 440 lbs. of oil extracted.

The Effects of Standardisation in Industry

By C. le Maistre, F.C.G.I.

Mr. le Maistre, Director of the British Engineering Standards Association, on Wednesday delivered an address before the Royal Society of Arts in London, on the value of standardisation as a remedy for some of our present industrial difficulties and the extension of the B.E.S.A.'s work to include the great chemical interests and other fields quite outside engineering. We give extracts from Mr. le Maistre's address below.

THE trade and industry of the country are passing through such a tremendous crisis, so prolonged and so far reaching in its effects that it behoves each one of us in our various spheres of activity to maintain the utmost confidence in the nation's ability successfully to meet and overcome the difficulties confronting it, however alarming they may appear to be. The spirit of co-operation so notably on the increase in industry everywhere, and the unity of action which comes from such co-operation, are immensely constructive factors, and should go far to help us in finding a remedy for at any rate some of our industrial difficulties. My purpose is to endeavour to show, in some small measure, the contribution which standardisation can make towards the solution of the problem by the introduction of greater economy in manufacture and distribution.

A National Effort

As in most countries, so in Great Britain, standardisation began in private firms and then passed on to being carried out by entire industries. So interdependent and interlocked, however, are the various industries of the country, that experience has shown that for the work to reach its highest efficiency and so confer the greatest benefit on the whole community, it has to be carried out nationally under some sort of central co-ordinating influence with, of course, a certain amount of properly organised de-centralisation. Obviously there must be some authoritative, impartial organisation, not dependent upon any one of the interests concerned, able to call all those interests together, to provide the opportunity of a satisfactory agreement being reached. The added authority which Government support gives is essential. Then again, a national centre is necessary in order to reduce overlapping and duplication to a minimum and so economise effort. It also avoids the difficulty of setting lines of demarcation in the work, and assists Government Departments who then have to deal only with one organisation, and have not to decide to which organisation they have to send any requests for standardisation.

Again, as bricks cannot be made without straw, and finance is an important aspect, naturally a national organisation is bound to receive greater financial support from industry as there is no question of having to divide contributions, and the funds can be more economically expended owing to the entire absence of any overlapping. For these and many other reasons the engineers of the country some 30 years ago decided to form a standards organisation. They had the foresight to realise that it must be impartial, and independent of Government control, yet have the fullest Government support in order to give it that very necessary authority to which I have alluded: and so the Engineering Standards Committee came into being in 1901. It has gradually gained to a most marked degree the confidence of industry and, under its present title, its work is growing by leaps and bounds.

Whilst a great number of people are converted to the idea and value of industrial standardisation, and are quite conversant with the principles upon which the work is carried on, there are still certain critics who, not being familiar with our procedure fear, that standardisation is going too far and that unless a halt is called the country will be over standardised. There is, certainly, always this danger unless the movement is most carefully watched and wisely guided through the many difficulties inherent in such work. Safeguards have to be applied to prevent the too enthusiastic advocates from forcing on the community undesirable and unwise standards. So long, however, as the community interest of purchaser and producer is strictly maintained, and so long as provision is made for periodical review and revision whenever these are desirable, there should be no fear of over-standardisation nor of interference with individual initiative and invention. Again the work must be protected from too rapid change or from change merely for the sake of change, as the recommendation must have some measure of permanence if they are to obtain the confidence of industry.

As a general principle it is of course desirable that the specification should be limited to recommendations as to performance and not, unless absolutely necessary, touch upon the actual process of manufacture. This allows the producer as much freedom as possible in his methods of meeting the requirements and also widens the market to the consumer. After 30 years' experience of drawing up specifications the form has, to a certain extent, naturally itself become standardised, though without any very hard and fast rules being laid down. The specifications include the technical provisions necessary for the supply of the material or article referred to and they do not attempt to comprise all the necessary provisions of a contract; great care is exercised to preclude any matters not essential to the specification and which might tend to interfere with future design. Tests are included where they are requisite to establish the standard of quality. Contract clauses of a non-technical nature are deprecated, though on the other hand, co-ordination of such clauses would have many advantages. If, however, a fully representative committee decide that in the case of some piece of apparatus for common every-day use the design has practically reached finality, and desire that the community as a whole shall reap the fullest benefit from standardisation and quantity production, it may be found desirable completely to control interchangeability of the apparatus or commodity. The Technical Committee is a Standing Committee, and so long as it watches the industrial situation carefully and reviews it periodically and frequently, there is nothing fundamentally wrong with crystallisation.

American Standardisation

People in this country sometimes think that American standardisation is the ideal we should aim at, and they are inclined to infer that we are very much behindhand. Such criticisms are surely based on lack of knowledge of the entirely different conditions existing in the two countries. It is a question as to whether the American ideal is altogether suitable for us to aim at: even in America they are beginning to think the work needs some review, and a good deal of co-ordination. It must be remembered that America is a Commonwealth of Nations trading freely between themselves with an almost illimitable home market. Great Britain, on the other hand, is a nation exporting to many different coun-

tries, each of which has very different requirements rendered necessary, no doubt, by climatic and other local conditions. If America has little to fear from competition, this country is hard up against it all the time, often competing against low-paid foreign labour—sometimes financed by our own capital.

It is no doubt true that standardisation in America has progressed further in individual firms than in any other country. Overlapping, however, has become stupendous and the American Standards Association has recently been formed to try to straighten things out. It is interesting to notice that quite a number of persons of high standing in America are beginning to raise their voices against over-standardisation. It is true, I think, that these criticisms are directed more against the standardised article or the appliance itself than against anything else.

Value of Standards

Whilst possessing no legislative authority nor yet subject to any Government control, this Association has gained to a notable degree the confidence of industry so that manufacturers find themselves constrained to make use of the British Standard Specifications, and the purchaser, although free to order what he likes, in the great majority of cases accepts the Association's recommendations. The result has been the saving of thousands of pounds a year to industry. One electrical cable firm, for instance, through the issue of a single British Standard Specification, admits having saved £500 a year, due to the decrease in the number of sizes of copper wire they are obliged to stock for the making of their electric cables. If one firm is able to liberate £10,000 which otherwise would have been locked up in one item of their stock, how much industry as a whole must have benefited.

Another notable example is that of the cement industry, which, 25 or 30 years ago, was in a chaotic condition. The cement makers, realising that something must be done, co-operated as an industry with the large users of cement and produced, under the ægis of our organisation, the British Standard Specification for Portland Cement, issued in 1904. The industry has been reorganised, and since then has steadily progressed and become one of the great modernised industries of the country, all based on the British standards.

It is to be regretted that there are still many trades and industries outside of the engineering and allied industries, which so far have given but little attention to this important matter. It is true that the work of the Standards Association is not at all widely known and industries outside those already affiliated with it may even hardly know of its existence, and certainly do not realise that they have at hand an organisation which, if made use of in the proper way, might immensely benefit their position.

Research

In the preparation of these specifications it has been found necessary to secure technical data upon which to base recommendations. This has often entailed either testing or investigation and research by an independent authority. The Association does not, as a rule, carry out this work, but it relies on the co-operation and assistance of the National Physical Laboratory and the various Research Associations which are under the Department of Scientific and Industrial Research. The work, however, of preparing industrial standards, as is generally recognised, necessitates a different outlook from the work of research. The fact that the practical recommendations based on research are so often prepared and issued by this Association has quite definite advantages. Notably has this been the case in the question of establishing a standard method for the sampling and analysis of coal in which this Association has had the fullest co-operation of the Fuel Research Board, who, in the most public-spirited manner, placed all their information and the results of several years' research work entirely at the disposal of the Committees of the Association.

The extension of the Association's work into fields quite outside of engineering has made the Council come to the unanimous conclusion that the time is past when the word "Engineering" can appear any longer either in our Charter or in our Title. The advantages to the country of a single national standard organisation are so immense and so generally recognised that there is every reason to anticipate that whatever modifications may be necessary will be brought about by common consent. Indeed, steps have already been taken in this direction with the great chemical interests, and I am happy to be able to say that with complete unanimity a new scheme, based on equal representation on a Grand Council of the great industries of the country—viz., public works and engineering, chemical, building and textile—is being evolved.

The question of a commercial specification for the sampling and analysis of coal, which has recently been issued, probably represents one of the most helpful pieces of work which this Association has ever accomplished for industry. A delegation, headed by the Minister of Mines, recently visited Scandinavia, where they had been to see what could be done to improve our coal export trade with those countries. The White Paper presented to Parliament showed the urgent necessity of some standard method for the sampling and analysis of coal, which would be acceptable to the foreign purchasers of British coal.

For the past three years this Association has been bending every effort to find a solution of this problem, and although the difficulties have sometimes been almost insuperable—in fact, at times the task has appeared hopeless—success has been attained, so absolute was the necessity of finding a solution. And so, for the first time in the history of the coal trade, a British Standard Specification drawn up by the industry, quite apart from any Government control, giving standards for every-day commercial use, has been agreed upon The foreign buyers of British coal have been consulted during the process, and their criticisms have been given the most careful consideration.

Finance

This national work cannot, of course, be carried out for nothing. Very rigid economies are exercised everywhere, and the cost is comparatively small. Last year, for instance, the total cost was in the nature of £23,000. This is due in large measure to the fact that there are two or three thousand men making up some five hundred committees who give their time and experience to this national work without fee or recompense, often at considerable inconvenience to themselves. The Association is not a profit-making concern, the benefits are reaped by industry. It exists for service to the community, its only expenses being for printing, office accommodation and its specially trained staff. Contributions are made by H.M. Government, the Government of India, the Crown Agents for the Colonies, Technical and Trade Organisations, Local Authorities, Railway Companies, in addition to many individual firms throughout the country. The Government, recognising the growing value of the work to industry, have recently largely increased their support by making an annual grant of £3,000 for five years, and will bring this up to £5,000 in proportion as industry increases its own contributions.

As the industrialists of this country more fully grasp the fact that this national organisation, entirely impartial and independent of Government control, actually exists in their very midst, and that its services are at their entire disposal, they will make more use of it with increasing benefit in the home trade and in foreign markets. Indeed, there is scarcely a fi m producing either materials or commodities which can afford not to be in touch with this work.

Homogeneous Lead Lining

To the Editor of THE CHEMICAL AGE.

SIR,—The statement in your series of notes headed "Chemical Plant and Engineering" gives the impression that until recently it was impossible to obtain in England homogeneous lead lining equal to that produced on the Continent. We have been carrying out homogeneous lead lining for many years now, a fact which is well known in the chemical trade. It is difficult to understand a statement which suggests that the production of such homogeneous lead linings in England is in any way a new development. No doubt you will give similar publicity to this note to that given to the article in question.—Yours, etc.,

THE KESTNER EVAPORATOR AND ENGINEERING CO., LTD.

February 2, 1931.

B

British Wood Preserving Association

Control of Harmful Insects

A MEETING of the members of the British Wood Preserving Association was held in London on January 28, when a lecture on "The Control of Insects Harmful to Timber" was delivered by Dr. James Watson Munro, Professor of Entomology in the University of London. Sir James Calder was in the chair. The lecture was illustrated by lantern slides.

Dr. Munro, after dealing briefly with the insects which attack standing timber in the forest, passed on to the group of beetles which attack timber between the forest and the manufacture of the finished timber, the most important of which are the Lyctus Beetles and the Death Watch Beetles. He stated that the Lyctus had proved a serious enemy to the timber trade, and that in spite of the enormous amount of damage done by it in timber yards and buildings, architects and builders did not sufficiently appreciate its menace, and had given too little attention to the Lyctus problem.

The Ideal Insecticide

Turning to the question of insecticides, Dr. Munro threw on the screen a table drawn up by the late Professor Lefroy to show what he believed to be the necessary qualities of a really good insecticide for use against Death Watch Beetles. In the first place, penetration was necessary; then came killing power and permanency, so that once having got rid of the pest, there should be no chance of the beetle again appearing in the building and getting a hold. The ideal insecticide should be deterrent to the beetle, unchanging chemically, non-inflammable, non-poisonous in application, non-poisonous after application, not a varnish solvent, simple and cheap, not smelly, should not produce toxic vapour, should be not corrosive to metal and applicable as a liquid, must not form dust and must not affect colour.

At the moment there was not a known chemical substance which met all these needs, and a considerable amount of empirical work had to be done, because we must have something to be going on with. At the same time, further study of the beetle's life history must be carried out.

Need of Further Research

The question of insecticides, Dr. Munro said, was very important and deserving of the utmost consideration by the British Wood Preserving Association. The difficulty of finding an insecticide which could be thoroughly recommended was made the more difficult by the great variation in the reaction of insects to insecticides. At some stages they were highly resistant, at other stages resistance was comparatively low, and the entomologists working in the laboratories had a very grave responsibility in recommending any particular insecticide. When their opinion was asked they were asked practically to recommend or wholly to discard some commercial product. Adequate scientific tests were necessary before recommendations could be made, and they could not be carried out without plentiful supplies of material on which to make tests. When it was stated that in certain experiments no fewer than 5,000 eggs of a species of beetle were required before results could be obtained from which really scientific conclusions could be drawn, it was not hard to realise the need of the laboratories for large supplies of living material. It sometimes happened that in the whole of a roof, on being cut up, there were found perhaps only three beetles and half a dozen grubs. Builders and architects could render valuable help in this research by bringing to the notice of the Forest Products Research Laboratory, Princes Risborough, cases of Death Watch Beetle damage which they came across.

The Secretary of the Association promised Dr. Munro that the Association would assist in obtaining information on insect attacks on timber in buildings, etc., from architects, builders and contractors, to whom a circular or questionnaire could be sent.

Among those who took part in the discussion which followed the lecture were Mr. A. R. Powys (Secretary of the Society for the Protection of Ancient Buildings) and Mr. W. T. Sweett (Holland and Hannen and Cubitts, Ltd.). Mr. Sweett confirmed, from the point of view of a firm supplying timber for panelling and other interior decorations, the remarks of the lecturer as to the extreme urgency of the Lyctus problem.

Fuel Research Coal Survey

Address by Dr. Sinnatt

IN the course of a lecture on Monday at the Sir John Cass Technical Institute, London, Dr. F. S. Sinnatt, Deputy-Director of Fuel Research, gave an account of the work being carried out by the Coal Survey, which is one item in the programme of the Fuel Research Division of the Department of Scientific and Industrial Research.

The survey, he said, was undertaking a systematic investigation of the coal seams of the country, and in order to carry out the work committees had been appointed in all the major coalfields of the country and laboratories had been established at convenient centres. The work was now in progress in Scotland, Northumberland and Durham, West Yorkshire, South Yorkshire, North Staffordshire, Nottinghamshire and Derbyshire, and South Wales, while a laboratory was being equipped to serve the coalfields of Warwickshire, Cannock Chase, and South Staffordshire. The work required for the Lancashire and Cheshire coalfields was carried out in the laboratories of the Lancashire and Cheshire Coal Research Association, which had been engaged on research upon coal since 1919. The problems which arose were so diverse that it was necessary to have the laboratories situated in the separate coalfields in order that the staff might be able to visit the collieries whenever necessary.

Investigating Pillar of Coal

Upon the technical side the investigations were carried out by obtaining a solid pillar of coal representing the whole thickness of the seam, and transporting this to the laboratory where it might be investigated in detail. In certain cases it was not possible to obtain a complete pillar, but every care was taken that each portion of the seam was represented in the section, and in its correct relative position. In selecting the positions from which the pillar sections were obtained it was necessary to ensure that it was representative of a reasonably large area, and in this part of the work the local committees gave valuable advice. When the pillar section arrived in the laboratory certain parts of the analyses were carried out rapidly so as to prevent changes due to oxidation, etc., and the seam was then examined for its physical characteristics and, if necessary, divided into a number of layers depending upon the character of the seam. Certain seams were so uniform in character that one or two sectional layers only were required, whereas in others it might be necessary to divide the seam into four to six layers. Samples of the various coals were obtained and submitted in the first instance to proximate analysis, together with the estimation of sulphur and the determination of the calorific value. The broad properties of the seam were then reviewed, and after consultation with the staff of the colliery the number of layers to be examined in greater detail was decided upon.

Properties of the Seam

In addition to the variation in properties which was found in the different layers in a seam, the seam might vary in properties from area to area, and this change might be a gradual one throughout the coalfield, or might be confined to relatively small areas. It was the object of the survey to trace the variations of the seams throughout the coalfield, and to correlate with this change in properties the possible effect they would have upon the way in which the seam was utilised commercially. It had been found by Hilt that with increase in the depth of the coal seam there was a tendency for the volatile matter to decrease.

Dr. Sinnatt discussed a number of examples of the variation encountered in the British coalfields, referring particularly to the Lancashire seams and the Parkgate seam of Yorkshire, reports on which were contained in the series of Survey Papers.

The chairman on the occasion was Mr. J. Arthur Reavell (President of the Institution of Chemical Engineers).

Exemptions from Key Industry Duty

THE Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting acid isobutyl allyl barbituric; acid propionic; butyl methyl adipate; calcium gluconate (calcium glyconate); chinoline (quinoline); strontium carbonate; strontium nitrate, from Key Industry Duty from February 3 to December 31, 1931. The Treasury Order will shortly be published by the Stationery Office.

Manchester Dyestuffs Action

A Question of Secret Information

IN the Chancery Division on Thursday an action by the United Indigo and Chemical Co., Ltd., of Manchester, against Mr. Wm. Robinson, ex-manager of the company's works, came before Mr. Justice Maugham, on a motion to restrain the defendant, until the trial of action, from making use of or disclosing secret information acquired by him while in the company's service.

His Lordship said that the evidence showed a very great conflict as to the substances the defendant was making.

Mr. C. E. R. Abbott, for the company, said that although the defendant looked with great contempt upon the suggestion that there was any secret in the plaintiffs' process, he regarded his own improvements as secret.

His Lordship said that the defendant's point was that he was not doing what was complained of. That was a question that could not be determined on a motion, and in the meantime all the Court could do was to restrain the defendant from communicating information which the plaintiffs said was secret. He could not restrain the defendant from going on making the two processes in question.

Mr. K. Swann, for the defendant, said he would undertake until the trial not to disclose or communicate to any person, firm, or company, any secret or confidential information acquired by him in the course of his employment by the plaintiffs, relating to their specialities of trade or processes, with the proviso that nothing in the undertaking should disqualify the defendant from carrying on these two processes or from giving information respecting them to his legal advisers.

This undertaking was accepted, and his Lordship gave facilities for a speedy trial of the action.

In Memory of Lord Melchett

IN connection with the I.C.I. magazine for February is published a very nicely produced supplement, "In memory of Alfred first Baron Melchett of Landford, 1868–1930." Perhaps its chief interest lies in its photographs, which represent Lord Melchett at different ages and in different connections—political, social and industrial; but the letterpress is also good, and brings out human sides of a great international figure that the public had little opportunity of observing, and the immense variety and virility of his intellectual and artistic interests. In a discerning and intimate character sketch it is stated that "the arts might have mastered his life, but affairs drew him and finally captured him." "All the world knew the Lord Melchett of industry, finance, and politics as a man of tireless activity and progressive views, but few were aware of the innumerable instances of his kindness and benevolence. . . . It is in keeping with the man that he never bore malice or resentment when he was hurt or attacked. . . . Lord Melchett, man of many affairs, was a very human person. That, perhaps, was the secret of his greatness."

Turner and Newall, Ltd.

Developments During Past Year

PRESIDING at the annual meeting of Turner and Newall, Ltd., held at York on Saturday, January 31, Mr. Samuel Turner said that the profits and progress of the company had continued satisfactorily during the past year in spite of the world economic crisis.

The producing and marketing units of the company were in a state of vigorous activity. New products were constantly issuing from them, the most far reaching development at present in hand being the installation of a new asbestos cement pipe factory at Widnes, the product of which would be marketed by Asbestos Cement Building Products, Ltd., Trafford Park. Another important step during the past year had been the production on a factory scale of fire-proof and non-organic sound absorption materials. Realising the urgency and the need of eliminating or reducing noise as far as possible in public buildings, hotels, factories and workshops, extensive research work has been undertaken, with the result that the Washington Chemical Co. produced a range of sound absorbing materials which had been accepted by the Office of Works, several municipal authorities, many leading shipbuilders, and the largest producers of talking films, for use in their buildings, workshops and ships, etc. It was sometimes suggested in the Press that the Turner and Newall company had a monopoly, or such preponderance in the world's asbestos industry as virtually amounted to a monopoly. This was not so, for there is no one of the unit companies which was not subjected to active competition, not only at home, but abroad. What their directors did claim is that the boards of the unit companies, being composed of practical men, highly experienced in their particular branch of the business, had been able not only to cope with all competition, but to step ahead of most of it.

Chemical Matters in Parliament

Research in the Rubber Industry

THE Rubber Industry Bill, which seeks to ensure the development of scientific and industrial research into problems arising in the manufacture of rubber, obtained its second reading in the House of Commons on Friday, January 30, by 148 votes to 10. Mr. Bellamy (Soc., Ashton-under-Lyne), who moved the second reading, said it was proposed to place the Research Association of British Rubber Manufacturers, established in 1920, on a sound basis. A contribution would be levied on all rubber manufacturers, to bring in a sum not exceeding £15,000 per annum to be used by the Association in continuance of its work. The contribution would amount, he thought, to not more than one-forty-fifth of a penny per pound on the rubber used. The operation of the Bill was limited to five years.

Sir J. Ferguson (C., Twickenham), in seconding, said the industry was yet in its infancy, and its future development must largely depend on research such as the Bill sought to promote.

Mr. Atkinson (C., Altrincham), moved the rejection of the Bill. He said the Research Association represented a combined capital of thirty-one million pounds, and they were asking for compulsory powers to raise a paltry £15,000 a year. The Bill would draw within its scope very small users of rubber, the vast majority of whom were opposed to the Bill.

Brig.-General Makins (C., Knutsford), in seconding, declared that it was a bad principle to tax raw material. If the rubber industry wanted a research station, it should be carried on upon voluntary lines.

Sir G. Hamilton (C., Ilford), complained that the Bill would penalise the foreign firms who had been induced under the Safeguarding policy to set up works in this country.

Mr. W. R. Smith (Parliamentary Secretary, Board of Trade) urged that the Bill should be given a second reading and further examined in committee. Research should be developed to the fullest extent in the interests of industry.

Manufacturing Chemists' Claim

IN Shoreditch County Court, on Wednesday, W. J. Bush and Co., of 28, Ash Grove, Hackney, London, manufacturing chemists and distillers of essential oils, sued R. E. Parker, of 32, Hertford Street, Coventry, a chemist, to recover £6 for goods sold and delivered. From the statement of claim it appeared that the defendant had three lots of goods amounting to £56 8s. 2d. in 1928. During 1929, £30 0s. 1d. was paid, and on January 31, 1930, £20 8s. 1d., making £50 8s. 2d., leaving, it was claimed, £6 due. Evidence was given by the defendant and by Mr. George Stevens, a clerk in the employ of Bush and Co., and Judge Thesiger said there was clearly a misunderstanding on the part of the defendant, and a mistake on the part of the plaintiffs. They had given the defendant a long time to pay, and he would have to pay now. There would be judgment for the plaintiffs with costs.

Austrian Chemical Industry

A GREAT increase in production of sulphuric acid, but a great decline in consumption, was one of the features of Austrian chemical industry in 1930. A drop of about 25 per cent. since 1928 is chiefly attributable to the reduced production of sulphate of ammonia and superphosphate.

Fuel for Small Boilers

Recent Developments in Economy

At a joint meeting of the Society of Chemical Industry and the Institute of Fuel at Bristol on Thursday, Mr. M. Harman Lewis, B.Sc., M.Inst.Fuel, presented a paper on "Recent Developments in Economy of Fuel for Small Boilers."

Discussing the possible saving of fuel in boiler plants generally, Mr. Lewis summarised the losses as follows:—(1) Loss in dry flue gas to chimney; (2) loss in moisture of fuel and moisture formed by combustion of hydrogen; (3) loss to unburnt carbon in ashes; (4) loss due to radiation from boiler casings, etc.; and (5) loss due to imperfect combustion (formation of CO which passed away unburnt). It was then pointed out that in order to obtain the most economical fuel consumption on any boilers, large or small, it was necessary to look very carefully into the losses falling under the first two headings. For the purpose of the paper it was assumed that the reduction in ash pit loss and the elimination of loss due to carbon monoxide would be accomplished by the skill of the operator.

The Small Economiser

At first sight the most straight-forward way of effecting economy in small boilers was to fit a small economiser. There were, however, various objections to this. In the first place the heat absorbed per unit of area, compared with the boiler, was very small, while in addition to the heating surface proper, the economiser comprised the necessary valves, safety valves and other fittings, so that in the case of small installations the cost might be excessive in comparison with the fuel saved. Apart from this, the reduction in temperature of gas resulted in a reduction of draught (where natural draught was employed) while at the same time the resistance to the flow of gas was increased, and further complications might occur on account of fans being required. Where, however, a number of Lancashire Boilers were in use, say 30 ft. by 9 ft. diameter, giving 10,000 lb. or so of steam per hour, the fitting of an economiser, particularly of the cast iron vertical tube type, was a commercial proposition, but the author looked at the problem rather from the view of the small boilers, taking the view of the user of one or two or at least a small number of small units. In cases where superheated steam could usefully be employed, the fitting of a superheater behind a boiler previously supplying saturated steam, was considered by the author to be a great advantage.

It was further stated that one of the most successful aids to economy in small boilers, developed in recent years, was the air pre-heater. This might be made in various forms, and consisted essentially either of tubes or plates, the hot gas passing through the tubes, while the air for combustion was drawn past the exterior of the tubes.

The Supermiser

Finally, the author referred to the Supermiser, which he described as an ingenious method of economising fuel. This combined the functions of heating the feed water and of heating the air for combustion from the waste heat in the flue gas after the latter had left the boiler. The apparatus consisted of a cylindrical vessel, the gas entering at one end and travelling through tubes in the top half to the other end. From there the gas was returned through the lower half of the cylindrical casing through a second set of similar tubes. The feed water was pumped through tubes mounted concentrically in those through which the gas was taken. The mean speed of the gas entering the tubes was in the neighbourhood of 75 ft. per second. The air for combustion was circulated outside the tubes conveying the gas. Thus both the feed water and the air for combustion were heated simultaneously. Such an apparatus has the merit of occupying small space and giving very economical results. Additional draught was, of course, necessary to draw the gases through the concentrically arranged tubes at the velocity mentioned, and, in addition, forced draught was required to force the air through the apparatus. Figures obtained from a test on a Supermiser mounted behind a Lancashire boiler were given.

A Manchester Engineer's Work

The work of Mr. T. R. Wollaston of Manchester, in connection with the application of the principle of the gas producer, was mentioned, and it was pointed out that a number of gas producer furnaces combined with boilers had been installed and were working satisfactorily. A very neat method of adapting the producer to a Lancashire type boiler was referred to, the producer being external to the boiler, the loss of heat by radiation being largely prevented by passing the air for the blast through the passages in the hollow walls surrounding the producer, as well as by generating the low pressure steam required for the gas production. In the opinion of the author, this method of firing small boilers was one of the most economical developed in recent years, and one that showed very great promise.

Synthetic Resin Moulding Powders

Factors Influencing their Electrical Properties

Mr. E. A. Bevan, B.Sc., presented on Friday (February 6) before a joint meeting of the Institution of the Rubber Industry and the Society of Chemical Industry at the Engineers' Club, Manchester, a paper (prepared by himself, Mr. N. Strafford, M.Sc., and Mr. E. E. Walker, D.Sc.) on "Some factors influencing the electrical properties of synthetic resin moulding powders."

It was pointed out in the paper that the heat-resistant properties and electrical properties, coupled with those of easy moulding of synthetic resin compositions, prepared from condensation products of phenol and formaldehyde or of their derivatives, soon led to their use and rapid development as insulators in the electrical industry, replacing to some extent porcelain on the one hand on account of its easier method of production and lack of brittleness, and on the other hand shellac, bituminen, and ebonite moulded compounds on account of its heat-resistant properties. The applications of these materials in the electrical industry were somewhat limited by certain inherent defects in the material itself, but in addition to these defects, their application had been also limited on account of the unreliability and lack of uniformity displayed by those materials as regards electrical properties. The figures quoted by manufacturers for the electrical properties of their moulding powders were of very little use since the determination of the electrical properties depended very largely upon the method and conditions under which the various tests were carried out.

Definite Results of B.D.C. Research

With a view to defining the limits of application of these materials as electrical insulators, to discovering the causes of their failure and breakdown, and to finding means of improving these and widening their field of application, a systematic research into the methods of electrical testing and the influence of various factors in the material itself, upon the electrical properties, had been carried out by the three authors in the laboratories of the British Dyestuffs Corporation, Ltd. In carrying out these determinations, the requirements of the user of these products as electrical insulators had been kept to the fore, so that, as far as possible, tests had been employed which would indicate the electrical properties of those materials under the actual sustained conditions of usage. The dielectric strength of phenol formaldehyde mouldings had been determined under those conditions at which the dielectric strength was independent of the time for which the voltage was applied. The electrical properties of mouldings exposed to controlled humidities had also been determined. The effects of degree of cure, of free moisture content of the powder, and of baking the mouldings on the electrical properties, were discussed. It was pointed out that while the moulding powder manufacturer could play his part in producing powders suitable for the manufacture of electrical insulators, the moulder must also play his part in order to obtain the best results.

Trade with Poland

A confidential memorandum on methods of quoting and terms of payment prevailing in relation to business with Poland prepared by the Commercial Secretary to H.M. Embassy at Warsaw has been received and issued by the Department of Overseas Trade to firms whose names are on its Special Register. British firms who desire to obtain a copy of the memorandum and particulars of the Special Register service should apply to the Department. (Reference No. C.X. 3,448.)

From Week to Week

NEGOTIATIONS are reported to be in progress for a newsprint merger of the majority of the largest Canadian paper companies, with a capital of six hundred million dollars.

RECENT WILLS include Frank George Symonds Price, a director of Frank G. Price and Co., Ltd., asbestos cement merchants, of Glasgow, personal estate in Great Britain, £31,718.

SPECIAL RELIEF PARCELS, which had been purchased on behalf of Imperial Chemical Industries, Ltd., were last week distributed to 250 Landore (Swansea) unemployed men, who formerly worked at the British Copper Works, Landore.

THE CHEMICAL SOCIETY announces that the second Pedler Lecture will be delivered at the Meeting Hall of the Institution of Mechanical Engineers, London, on Friday, March 6, by Geh. Reg.-Rat. Professor Dr. H. Wieland, whose subject will be "Studies on Biological Oxidation."

MR. CLARENCE A. SEYLER, B.Sc., F.I.C., has been elected president of the South Wales Institute of Engineers for the coming year. Mr. Seyler, who is a native of London, studied chemistry under Professor Williamson and Sir William Ramsay and is at present engaged in research work on coal.

THE NEW SOVIET FACTORY at Muskowskir, is reported to have made rapid strides in recent years and is now capable of producing 200 metric tons a month of 40 per cent. formaldehyde. Another factory is to be erected by the "Ljessochim" undertaking with an annual capacity of 2,400 metric tons, and others are projected for the manufacture of synthetic methyl alcohol.

ON HIS RETIREMENT, Mr. Edwin Price, who has been works foreman for 45 years at B. Hepworth and Co., Ltd., chemical works, Kidderminster, was on Friday, January 30, presented with a cheque and an armchair by the directors and the employees. Mr. E. G. Eddy, managing director, testified to the happy relationship which has always existed between the company and the employees.

A GENERAL MEETING of the Royal Institution was held on Monday, when the thanks of the members were returned to the Trustees of the Pilgrim Trust for their donation of £16,000 to complete the Building Fund, and to Sir Robert Hadfield for his present of research apparatus. A bequest of £100 from the late Mr. W. H. Frizell, M.R.I. was reported. Miss Grace Freeth, H.H. The Maharaj-Rana of Jhalawar and Dr. J. M. Robertson were elected Members.

THE PRICE of the Periodic Law Chart, prepared by W. H. Barrett, Assistant Master at Harrow School, and published by John Murray, is 5s. 6d. unmounted, 9s. 6d. mounted on linen, and 15s. 6d. varnished and on rollers. The chart, which was briefly noticed in our issue of January 24, is 6 ft. by 2 ft. 2 in., and comprises four separate tables: Periodic Table and Atomic Numbers (after Bohr), Periodic Table and Atomic Weights (after Mendeleef), Periodicity of Atomic Volumes (after Lothar Meyer), and Melting Points and Atomic Numbers.

MR. JOHN INGLIS has been elected chairman of Joseph Crosfield and Sons, Ltd., in place of Mr. Geoffrey Heyworth, who is leaving Warrington to take up a position in London at the headquarters of Lever Brothers, Ltd. Mr. R. E. Huffam has been appointed chairman of the committee of managers of the works of Lever Brothers, at Port Sunlight, and is, in consequence, resigning his position of technical director of Joseph Crosfield and Sons. Dr. C. W. Moore, general works manager, joins the board as technical director. Mr. H. W. Pring, general sales manager, also joins the board.

THE WILLARD GIBBS MEDAL, one of the highest distinctions in chemical science, has been awarded for 1931 by the Chicago Section of the American Chemical Society to Dr. Phœbus A. Levene, of the Rockefeller Institute, "as the outstanding American worker in the application of organic chemistry to biological problems." Dr. Levene is distinguished for his studies in nucleic acids, amino sugars, lecithins, cephalins, fatty acids, cerebrosides, inorganic esters of sugars, thio-sugars in yeasts, hydroxy acids, and amino acids, as well as for his work in stereochemistry as illustrated by the configuration of sugars in the Walden inversion. Dr. Levene, a Russian by birth, has been in the United States since 1893.

THE HOURS OF WORK of 4,000 employees in the ammonia and nitrogen works of I.G. Farbenindustrie have been reduced from 48 to 42 per week.

THE NEGOTIATIONS which have been proceeding for some time in New York for the establishment and financing of "Cosach," the Chilean Nitrate Co., are now believed to be almost complete.

AT A PRIVATE MEETING of the Vale of Leven branch of the Bleachers' and Dyers' Union, it was decided to resist all attempts of the employers to reduce wages, and to ask instead, for an increase. The employers are seeking a 15 per cent. reduction.

THE EDINBURGH SECTIONS of the Society of Chemical Industry and the Institute of Chemistry last week held a joint exhibition of materials and apparatus connected with the chemical industries. Several firms in the Edinburgh neighbourhood were represented and a number of films was shown.

REFRACTORIES formed the subject of a discussion, opened by Mr. C. E. Moore at the meeting of the Co-ordinating Committee, representing the Staffordshire Iron and Steel Institute, the Birmingham Metallurgical Society, and the Birmingham local section of the Institute of Metals, held at Birmingham on Tuesday evening.

AN EXTRAORDINARY GENERAL MEETING of Brand Powdered Fuel System, Ltd., was held recently, when it was decided that the undertaking could not, by reason of its liabilities, continue in business, and that it is advisable therefore to wind up. The company was registered in 1928, and is associated with "B. and L." Powdered Fuel, Ltd.

THE ROYAL AGRICULTURAL SOCIETY is again offering a silver medal, together with money or books to the value of £10, for a monograph or essay from a candidate under thirty years of age, upon any agricultural subject, on any of the cognate agricultural sciences, or on agricultural economics. Last year the research committee awarded the medal and prize to Mr. A. W. Greenhill for his essay on "The Availability of Phosphatic Fertilisers, as shown by an Examination of the Soil Solution and of Plant Growth."

UNIVERSITY NEWS.—*Cambridge*.—The Vice-Chancellor announces that the Treasurer has received a cheque for five thousand dollars "as a grant towards Dr. Eric M. Rideal's new Department of Colloids." No condition is attached to the gift except that the donors do not wish their names to be published. The Faculty Board of Physics and Chemistry have reappointed Dr. J. Chadwick, Gonville and Caius College, Assistant Director of Radio-active Research at the Cavendish Laboratory for a period of three years.

FROM MANY APPLICANTS for the post of Principal of the Constantine Technical College, Middlesbrough, rendered vacant by the departure of Dr. Ingal, the governors have selected the following to be interviewed before the final appointment is made:—Mr. Thomas G. Bamford, M.Sc., of West Bromwich, Principal of the Wednesbury Technical College; Mr. Fred Johnson, D.Sc., of Birmingham, chief of the department of metallurgy in the Birmingham Technical College; Mr. Thomas J. Murray, M.Sc., Ph.D., Principal of the Smethwick Municipal College; Mr. Thomas S. Price, D.Sc. (London and Birmingham), Ph.D. (Leipzig), F.C.S., F.R.S., London; Mr. William Ryan, B.Sc., head of the department of chemistry and metallurgy at the Wolverhampton Technical College.

GIBBONS BROTHERS, LTD., Dibdale Works, Dudley, in conjunction with Wild-Barfield Electric Furnaces, Ltd., Elecfurn Works, North Road, Holloway, London, have acquired from Rudge-Whitworth, Ltd., Birmingham, as from February 1, the sole manufacturing and selling rights of the well-known carburising compound "Eternite." The same staff for manufacturing has been retained and every effort will be made to maintain the quality of this well-known compound. In connection with the above, and the acquisition for the manufacture and sale of mechanically-operated furnaces, Hevi Duty Electric type (under agreement with the Hevi Duty Electric Co., Milwaukee, U.S.A.), Gibbons Brothers, Ltd., and Wild-Barfield Electric Furnaces, Ltd., are stated to be forming a new company under the title of "G. W. B. Electric Furnaces, Ltd." The whole of the share capital will be held by the firms named.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Accepted Specifications

330,220. Alkali and Alkaline-Earth Metal Cyanates. Deutsche Gold-und-Silber-Scheideanstalt vorm. Roessler, 7, Weissfrauen-strasse, Frankfort-on-Main, Germany. International Convention date, April 10, 1929.

Urea is heated to 120°—150° C. with basic alkali metal compounds such as soda or potash, or alkali hydrides or alkaline earth metal compounds, *e.g.*, calcium oxide, hydroxide, carbide, hydride, amide, or carbonate, but not alkali hydroxide. Ammonia evolved is recovered, and the alkaline earth cyanates are treated with alkali compounds to obtain alkali cyanates.

339,235. Organic Acids. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, December 18, 1929.

Acetic and other carboxylic acids are obtained by passing the nitrile vapour obtained as described in Specification No. 332,258 (see The Chemical Age, Vol. XXIII, p. 258), continuously in contact with a current of mineral acid such as 50—90 per cent. phosphoric acid. In an example, a mixture of acetylene and ammonia is passed at 400° C. over zinc chloride on silica gel, and the vapour is passed through a vessel at 80° C. to remove any pyridine and then into a tower through which sulphuric acid passes at 200°—220° C. The acetic acid obtained is passed through a dephlegmator to remove hydrocyanic and sulphuric acids, and an acid of 25 per cent. to 30 per cent. strength is finally obtained. Several other examples are given.

339,243. Synthetic Rubber. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 30, 1929.

Diolefines are polymerised in the presence of sodium, potassium, calcium or their alloys, or alkali or alkaline earth metal compounds, with organic radicles which are not capable of ionisation, such as sodium ethyl, potassium ethyl, potassium diphenyl-methyl methane, sodium triphenyl methane, potassium triphenyl methane, and lithium alkyls. The polymerising agent is added gradually or in three or more fractions. Hydrocarbon solvents and ethers may be present.

339,255. Synthetic Rubber. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 30, 1929.

A mixture of a diolefine with styrene is polymerised to obtain rubber-like or plastic masses according to the proportions. The rubber-like products may be vulcanised, and the products used for the manufacture of transporting-bands, tyres, driving belts, coatings, etc., while the plastic non-vulcanised products are used as moulding substances and gutta percha substitutes.

339,266–7. Dyes. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 3, 1929.

339,266. 1-amino-4-bromo-anthraquinone-2-sulphonic acid is treated with an aromatic amine containing a hydroxy group which is etherified by a polyvalent alcohol, in the presence of copper or a copper salt. The products dye wool blue and greenish-blue shades.

339,267. Two molecular proportions of α-amino-anthraquinone or a substitution product are condensed with one molecular proportion of a reactive derivative of a naphthalene dicarboxylic acid, a diphenyl-methane dicarboxylic acid, diphenyl-$p:p^1$, dicarboxylic acid, or a halogen substitution product, except such dicarboxylic acids as are capable of forming internal anhydrides. The reactive derivative may be a dihalide. Examples are given of the condensation of α-amino-anthraquinone with naphthalene-2 : 7-dicarboxylic acid chloride, diphenyl-4 : 4^1-dicarboxylic acid chloride, 3 : 3^1-dichlor-diphenyl-4 : 4^1-dicarboxylic acid chloride, diphenyl-methane-$p:p^1$-dicarboyxlic acid chloride; 4-methoxy-1-amino-anthraquinone with naphthalene 2 : 6-dicarboxylic acid chloride; 4-benzoyl-amino-1-aminoanthraquinone with naphthalene-2 : 7-dicarboxylic acid chloride.

339,274. Cracking Hydrocarbons. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, May 30, 1929.

Hydrocarbon gases or vapours are cracked in the presence of catalysts consisting of bricks moulded from powdered silicon, or silicon deposited on a carrier.

339,283. Azine Derivatives. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 30, 1929.

2-Naphthylamine or its corresponding derivatives which contain a free 1-position are oxidised with a metallic oxide in a high boiling inert solvent to obtain 1 : 2 : 5 : 6-dibenzophenazine and its derivatives. 2-Naphthylamine sulphonic acids may be similarly oxidised in aqueous solution to obtain the sulphonic acid derivatives.

339,317. Destructive Hydrogenation. F. Uhde, 79, Rathenauallee, Dortmund, Germany. International Convention date, October 3, 1928.

Oil, bitumen, carbon or wood is heated with finely divided or spongy iron and water in an autoclave to 400° C. at a pressure of 200 atmospheres. The products are separated from the water and distilled, yielding a product containing 60—80 per cent. of hydrocarbons boiling below 200° C. The residue may be treated again or used as fuel oil, and the gases may be used to regenerate the iron oxide. Catalysts such as nickel, copper, zinc oxide, zinc chromate or aluminium chloride may be present.

339,324. Dyes. R. S. Barnes, F. R. Thomson, J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth. Application date, May 31, 1929.

Enolic esters of dibenzanthrone or halogenated dibenzanthrone are treated with oxides or acid salts rich in oxygen, such as potassium dichromate or permanganate, in a mineral acid of at least 4 per cent. strength. In examples the enolic sulphuric ester of dibenzanthrone is oxidised, and pentachlor-dibenzanthrone is esterified with pyridine sulphur trioxide in pyridine, and the product oxidised.

339,330. Alkali Carbonates and Bi-Carbonates. H. E. Potts, Liverpool. From Soc. Anon. Alcalina, Seilles, near Andenne, Belgium. Application date, August 1, 1929.

Alkali carbonates and bicarbonates are obtained by decomposing a double magnesium and potassium carbonate, made by the reaction of nascent magnesium carbonate and a potassium salt, with or without a sodium salt saturated with carbon dioxide at a pressure at least equal to the critical pressure at the temperature employed. The process is described in detail.

339,332. Hydrogen Peroxide. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 6, 1929.

Gaseous mixtures containing vapours of hydrogen peroxides are passed over solid substances which unite with it, such as urea, methylol ureas, acetamide, urethane, succinic amide, mannitol, erythritol, pinacone, hexamethylene-tetramine, or alkali metal sulphates, carbonates, borates, nitrates, or phosphates. The reaction may be effected at low temperatures and stabilisers may be added.

339,336. Bleaching Agents. R. E. Ellis, London. From Pilot Laboratories, Inc., 244, Laurel Avenue, Arlington, N.J., U.S.A. Application date, August 29, 1929.

Bleaching agents for flour, oil-seed meals, soaps, oils, fats, waxes, and other animal and vegetable foodstuff products, are made by treating mixtures of the acid chlorides of higher fatty acids, *e.g.*, caproyl, lauryl, or oleyl chlorides, and benzoyl chloride, chloro or bromo-benzoyl chloride, with peroxidising agents such as hydrogen peroxide, or solutions of sodium peroxide. A suitable mixutre of acid chloride is obtained by treating the mixed fatty acids of coconut oil with thionyl chloride or phosphorus pentachloride.

339,340. TREATING ROCK PHOSPHATE. Odda Smelteverk Aktieselskabet, and E. Johnson, Odda, Norway. International Convention date, October 27, 1928.

Rock phosphate is treated with 50 per cent. nitric acid to obtain a solution which, when cooled below 10° C., deposits a substantial proportion of the calcium nitrate as $Ca(NO_3)_2 . 4H_2O$. The separated calcium nitrate may be mixed with powdered limestone, hydrated lime, ammonia or ammonium carbonate and calcined to obtain the usual commercial product. The mother liquor may be neutralised with ammonia and dried to obtain a mixed fertiliser.

339,348. KETONES. Soc. Anon. M. Naef et Cie, 1, Chemin de Mélèzes, Geneva, Switzerland. International Convention date, October 9, 1928. Addition to 235,540. (See THE CHEMICAL AGE, Vol. XIII, p. 176.)

The uranyl or other rare earth salt of an unsaturated dicarboxylic acid, having at least 11 carbon atoms in a normal chain, and the two carboxylic acid groups at the ends of the chain, are subjected to heat treatment to obtain cyclic unsaturated ketones more than nine ring members. The preparation of the unsaturated dicarboxylic acids is described as well as the preparation of cyclo-hexa-decene-8-one-1 from the yttrium salt of pentadecene-7-dicarboxylic acid-1 : 15, and cyclo-hepta-decene-9-one-1 (civetone) from the thorium salt of hexa-decene-8-dicarboxylic acid-1 : 16.

339,352. VULCANISATION ACCELERATORS. H. Wade, London. From Rubber Service Laboratories Co., 335, South Main Street, Akron, Ohio, U.S.A. Application date, September 7, 1929.

Vulcanisation accelerators are obtained by treating an aldehyde amine—*e.g.*, an alkylidene or an alkylidene-arylamine with an unsaturated aldehyde substituted in the α and β positions, the condensation being effected in the presence of an organic acid—*e.g.*, butyric acid. An example is given.

339,357. LEAD PIGMENTS. Swiss Inventions Syndicate, Ltd., Amberley House, Norfolk Street, Strand, London, and A. V. Blom, 14, Sonnhaldenstrasse, Zurich, Switzerland. Application date, September 7, 1929.

An alloy of lead 85 per cent., antimony 13 per cent., and tin 2 per cent. is melted in a thin layer in an airtight furnace, in the presence of 0·5 per cent. of calcium resinate, and air is drawn in to oxidise the lead. The pigment consists of a fine dispersion of lead in lead oxide.

339,359. SYNTHETIC DRUGS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 7, 1929. Addition to 317,325.

Therapeutic compounds are obtained by condensing a saturated or unsaturated fatty acid containing at least 10 carbon atoms, or an ester, chloride, amide or imino ether with an aromatic primary or secondary amine having a side chain containing tertiary nitrogen—*e.g.*, palmitic acid chloride with *p*-β-diethyl-amino-ethoxyaniline.

339,371. CYANATES AND CYANAMIDES. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 13, 1929.

Cyanates and cyanamides are obtained by heating urea with oxides or carbonates of alkaline earth metals, magnesium, zinc, copper, cadmium, nickel or lead. If the temperature is 130°–400° C., cyanates are mainly obtained, but above 400° C. cyanamides are mainly obtained. Urea may be replaced by a mixture of ammonia and carbon dioxide, or by ammonium carbonate or carbamate.

339,396. DYES. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 28, 1929.

A condensation product obtained by treating a 1-(Bz1-benzanthronylamino)-4- or 5- or 8-aminoanthraquinone or a substitution product halogenated in the benzanthrone residue, with an alkali condensing agent, is treating with an acylating agent in a high-boiling solvent or diluent. Examples are given. Reference is directed by the Comptroller to Specification 24,604/1908.

339,398. INDIARUBBER. Imperial Chemical Industries, Ltd., Millbank, London, and E. B. Robinson, Crumpsall Vale chemical Works, Blackley, Manchester. Application date, September 30, 1929.

Indiarubber is liquefied by heat and isomerised by sulphuric acid, sulphonic acids, sulphonyl chlorides, sulphuric esters, metallic halides, with or without phenolic bodies.

Specifications Accepted with Date of Application

318,837. Sulphonic acids of 2-halogen-3-chloro-4-amino-1-methylbenzene, Manufacture of—and a process for separating into their constituents mixtures of 2-halogen-3-chloro- and 2-halogen-5-chloro-4-amino-1-methylbenzenes. I.G. Farbenindustrie Akt.-Ges. September 7, 1928.

341,391. Polymerising unsaturated hydrocarbon gases, Processes for. C. R. Wagner. July 8, 1929.

341,393. Decomposition under the action of heat of a mixture of methane or other hydrocarbons and water vapour. Union Chimique Belge Soc. Anon. June 22, 1929.

341,397. Monoazo dyestuffs, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) September 11, 1929.

341,400. Vat dyestuffs of the benzanthrone series, Manufacture of. I.G. Farbenindustrie Akt.-Ges. October 26, 1928. Addition to 305,679.

341,402. Alicyclic lactones of tetrahydronaphthalenes, Process for producing. I.G. Farbenindustrie Akt.-Ges. October 5, 1928.

341,409–10. Zinc-base alloys. New Jersey Zinc Co. March 12 and March 9, 1929.

341,425. Nitrogenous fertilisers, Apparatus for the manufacture of. Adco, Ltd., and J. Ashen. October 14, 1929.

341,432. Vat dyestuff, Manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) July 15, 1929.

341,443. Manufacturing dispersions, Process for. H. D. Elkington. (*Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij.*) October 9, 1929.

341,444. Purification of sulphur containing gases or vapours. British Celanese, Ltd., W. Bader, and E. J. Shelmerdine. October 10, 1929.

341,447. Condensation products from polybasic acids and polyhydric alcohols, Production of. H. A. Bruson, and Chemische Fabriken Dr. K. Albert Ges. October 11, 1929.

341,451. Separation of solid constituents from the residues obtained in the destructive hydrogenation and similar treatment of carbonaceous materials. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 14, 1929.

341,461. Azo dyestuffs, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) September 16, 1929.

341,462. Hydrogen or gases containing hydrogen, Manufacture of—from methane and similar hydrocarbon or gases containing these hydrocarbons. D. Tyrer and Imperial Chemical Industries, Ltd. October 3, 1929.

341,490. Rubber-like products, Manufacture of—by modifying the physical properties of organic isocolloid materials containing unsaturated carbon compounds. L. Auer. July 8, 1929. Addition to 318,562.

341,549. Azo-dyestuff components, Manufacture of. Kalle and Co., Akt.-Ges. October 19, 1928.

341,554. Indole derivatives, Manufacture of. Imperial Chemical Industries, Ltd., H. A. Piggott and E. H. Rodd. October 22, 1929.

341,553. Homologues of anthraquinone, Manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) August 19, 1929. Addition to 327,128.

341,560. Hydrogenation of carbonaceous bodies in the presence of catalysts. Chemical Reactions, Ltd. (*L. Von Szeszich.*) October 22, 1929.

341,570. Sulphates of ammonia, Manufacture of. H. D. Elkington. (*Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij.*) October 25, 1929.

341,581. Continuous extraction process and apparatus therefor. I.G. Farbenindustrie Akt.-Ges. July 27, 1929.

341,584. Purification of hydrogen, hydrogen-containing gases, air and other gases. Technical Research Works, Ltd., and E. J. Bush. October 31, 1929.

341,598. Heterocyclic compounds, Manufacture of. A. Carpmael. (*Schering-Kahlbaum Akt.-Ges.*) November 6, 1929.

341,612. Ortho-aniline sulphonic acids, Manufacture of. W. W. Groves. (*I.G. Farbenindustrie Akt.-Ges.*) November 13, 1929.

341,650. Thymol and menthone, Production of. Orbis Products Trading Co., Inc. December 5, 1928.

341,676. Destructive hydrogenation of coal, oils and the like. J. Crowe, K. Gordon and Imperial Chemical Industries, Ltd. December 17, 1929.

341,684. Catalytically oxidising hydrogen sulphide. A. G. Bloxam. (*R. Kuhn.*) December 21, 1929.

341,714. Imino ethers, Production of. K. F. Schmidt and P. Zutavern. January 18, 1930. Addition to 339,147.

341,725. Oxidation of sulphur dioxide. E. B. Maxted. January 24, 1930.

341,730. Organic esters and acids, Manufacture of. Imperial Chemical Industries, Ltd. (*E.I. Du Pont de Nemours and Co.*) January 31, 1930.

341,738. Heat treatment of cast iron. White and Poppe, Ltd., and J. S. Thompson. February 7, 1930.

341,781. 1 : 1 : 2-trichlorethane, Manufacture of. Consortium für Elektro-Chemische Industrie Ges. March 21, 1929.

Applications for Patents

[In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.]

Anglo-Persian Oil Co., Ltd., and Dunstan, A. E. Heat treatment of hydrocarbon gases. 2,516. January 26.

Arnold, O. Treating calcium and magnesium carbonates. 2,840. January 28.

Bloxam, A. G., and Soc. of Chemical Industry in Basle. Manufacture of materials capable of being moulded, etc. 2,919. January 29.

Böhme, Akt.-Ges., H. T. Production of sulphonated oil preparations. 2,587. January 26. (Germany, March 13, 1930.)

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Printing Cotton. 2,575. January 26.

—— Manufacture of carbazole compounds. 2,576. January 26.

—— Manufacture of waxes. 2,704. January 27.

—— Dyestuff preparations for textile printing. 2,705. January 27.

—— Derivatives of sulphonated fatty acids. 3,099. January 30. (Sept. 2, 1929.)

—— Derivatives of sulphonated fatty acids. 3,100. January 30. (June 2, 1929.)

Dunn, J. S. Recovery of sulphur dioxide from gas mixtures. 2,907. January 29.

Elkington, H. D., and Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. Polymerization of unsaturated hydrocarbons. 2,809. January 28.

Fairweather, D. A. W., Imperial Chemical Industries, Ltd., and Thomas, J. Production of dyestuffs, etc. 2,796. January 28.

Fairweather, D. A. W., Scottish Dyes, Ltd., and Thomas, J. Dyes. 2,806. January 28. (May 1, 1929.)

Grison, J. Manufacture of solidified carbon dioxide, etc. 2,824. January 28.

Gubelmann, J., and Wieland, H. J. Preparation of hydroxyanthraquinones. 2,828. January 28.

Hannon, J., and Mendoza, M. Azo dyestuffs for leather. 2,792. January 28.

Havenhand, D., Hull, P. H., and Imperial Chemical Industries, Ltd. Production of chromic acid. 2,686. January 27.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of wetting, etc., agents. 2,509, 2,510. January 26.

—— Manufacture of wetting, etc., agents. 2,771. January 28.

—— Manufacture of fertilizers. 3,041. January 30.

—— Apparatus for degasification of carbonaceous materials. 3,169. January 31.

—— Separating waste acids. 3,170. January 31.

I.G. Farbenindustrie Akt.-Ges. and Mond, A. L. Device for producing snow for fire-extinguishing purposes. 2,923. January 29.

I.G. Farbenindustrie Akt.-Ges. Manufacture of 1:2:5:6-diphthaloyl naphthalene homologues, etc. 3,178. January 31. (Germany, January 31, 1930.)

Imperial Chemical Industries, Ltd. Fluid-operated reciprocating pumps. 2,687. January 27.

—— Age-resisting rubber compounds. 2,791. January 28.

—— Azo dyestuffs for leather. 2,792. January 28.

—— Coating-compositions. 2,793. January 28. (United States, January 28, 1930.)

—— Manufacture of chlorinated meta styrene, etc. 2,794. January 28. (United States, January 28, 1930.)

—— Recovery of sulphur dioxide from gas mixtures. 2,907. January 29.

—— Coating compositions. 3,034. January 30. (United States, January 31, 1930.)

—— Thermal treatment of gaseous hydrocarbons. 3,103, 3,105. January 30.

—— Production of lubricating oils. 3,104. January 30.

Imperial Chemical Industries, Ltd., Tatum, W. W., and Thomson, R. F. Production, etc., of anthraquinone derivatives. 2,795. January 28.

Krollpfeiffer, F. Manufacture of new products from 7-iodo-8-hydroxyquinoline-5-sulphonic acid, etc. 2,959. January 29. (Germany, January 30, 1930.)

Loughlin, J. F. Production of higher alcohols by fermentation. 2,761, January 28. (United States, January 31, 1930.)

Newport Chemical Corporation. Colour-printing paste. 2,548. January 26. (United States, February 6, 1930.)

Schindelmeiser, J. Production of nitrates of phenols and poly-alcohols. 2,503. January 26.

Sokal, S. and Ultra Oelfeuerungs Akt.-Ges. Hydrocarbonaceous mineral oils. 3,093. January 30.

Standard Oil Development Co. Obtaining hydrocarbon oils from unrefined hydrocarbon material. 2,546. January 26. (United States, January 30, 1930.)

Titanium Pigment Co., Inc. Manufacture of composite titanium pigments. 2,839. January 28. (United States, January 29, 1930.

South Metropolitan Gas Co.

Dr. Carpenter's Protest Against Official Attitude

DR. CHARLES CARPENTER presided at the annual meeting of the South Metropolitan Gas Co. held at the Cannon Street Hotel, London, on Wednesday, and in reviewing the past year said there was a decrease in the sale of gas in the early months, but it was now being made good, and for the year amounted to only 2·97 per cent. Gas unaccounted was for reduced to 0·88 per cent. A considerable portion of his address was devoted to a criticism of the official attitude towards gas and restrictions on its development in certain neighbourhoods. Dr. Carpenter also took occasion to protest against some recent speeches of the Minister of Transport advocating the exclusive use of electricity. Why was one public utility organisation specially selected for support at the expense of another, which no one had ever suggested did not fulfil a useful and, indeed a necessary, purpose?

On the subject of low temperature carbonisation Dr. Carpenter said that last year two low temperature plants were installed at the East Greenwich works. One of these, after a period of promise, broke down from mechanical, but, nevertheless, very serious weakness. Whether the conditions under which it worked were more exacting at East Greenwich than at the Essen Colliery, where the process was originally worked out, he was unable to say, but unlike a colliery, a gasworks could not look favourably upon the use of a plant from which the production of gas might be liable to fail at short notice. They had agreed to lease to Coal Oil Extraction, Ltd., the promoters, the land upon which the plant was erected, pending the achievement by them of results reported from similar apparatus in America, but it was no longer obligatory upon the Gas Company to purchase the experimental unit. As regards the "Coalite" process, he could not say anything new other than that it was gradually being put to work. It was not yet possible to discuss working results, as none were available.

"Daily Mail" Ideal Home Exhibition

AN attractively coloured brochure has been issued giving advance information of the general layout and special features of the *Daily Mail* Ideal Home Exhibition, to be held at Olympia, London, from April 7 to May 2 next. Practically the whole of the ten acres of floor space has already been let and the exhibition, which has been so highly appreciated for several years past, promises to be even more impressive than any previous effort.

The Grand Hall will house the sections of the exhibition covering furnishing, decoration, sanitation, etc., and the coloured illustrations in the brochure give a vivid impression of the imposing scenes which will meet the eye of the visitor on entering the Main Hall. "The House that Jill Built," which was such an attraction at last year's exhibition, will have as an interesting sequel "The House that Jack Built." Another new feature in the Housing Section will be "Caravan Town"—a display of homes on wheels which are now available for the lover of the nomad holiday. The Garden Section, known as "The Gardens of the Counties," is expected to be more beautiful than before in view of the fact that the Exhibition opens later in the spring than in previous years, and other special features include a "Pageant of Fashion," to be staged in the Empire Hall, "Nurseries for all Purses," a series of rooms showing the evolution of the decoration and furnishing of the English Dining Room, and "Famous Rooms from Fiction."

"The Personal Papers of Lord Rendel"

THIS volume, edited by Mr. F. E. Hamer (Ernest Benn, Ltd., 18s.), and described by reviewers as the most notable and readable political book of the New Year, has promptly run into a second impression, the demand from the libraries being general and steady. Apart from the personal interest of the letters and personal conversations with Gladstone and other celebrities, the "Papers" are accepted as an important addition to the literature and political history of the Gladstone period, and many congratulations from public men have reached the editor.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£18 15s. per ton d/d address U.K. in casks.
ACID CHROMIC.—1s. per lb., less 2½% d/d U.K.
ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. carboy d/d, according to purity, strength and locality.
ACID NITRIC, 80° Tw.—Spot, £20 to £25 per ton makers' works, according to district and quality.
ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
AMMONIA (ANHYDROUS).—Spot, 10d. per lb., d/d in cylinders.
AMMONIUM BICHROMATE.—8⅛d. per lb. d/d U.K.
BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.
BLEACHING POWDER, 35/37%.—Spot, £7 19s. per ton d/d station in casks, special terms for contracts.
BORAX, COMMERCIAL.—Crystals, £13 10s. per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags. carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards).
CALCIUM CHLORIDE (SOLID), 70/75%.—Spot, £4 15s. to £5 5s. per ton d/d station in drums.
CHROMIUM OXIDE.—9d. to 9½d. per lb. according to quantity d/d U.K.
CHROMETAN.—Crystals, 3½d. per lb. Liquor, £18 12s. 6d. per ton d/d U.K.
COPPER SULPHATE.—£25 to £25 10s. per ton.
METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 7d. to 1s. 11d. per gall. pyridinised industrial, 1s. 9d. to 2s. 1d. per gall.; mineralised, 2s 8d. to 2s. 11d. per gall. 64 O.P., 1d. extra in all cases. Prices according to quantity.
NICKEL SULPHATE.—£38 per ton d/d.
NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
POTASH CAUSTIC.—£30 to £33 per ton.
POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4¼d. per lb. nett d/d U.K., discount according to quantity; ground ½d per lb. extra.
POTASSIUM CHLORATE.—3½d. per lb. ex wharf, London, in cwt. kegs.
POTASSIUM CHROMATE.—8½d. per lb. d/d U.K.
SALAMMONIAC.—Firsts lump, spot, £40 17s. 6d. per ton d/d address in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.
SALT CAKE, UNGROUND.—Spot, £3 10s. per ton d/d station in bulk.
SODA ASH, 58%.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.
SODA CAUSTIC, SOLID, 76/77%.—Spot, £14 10s. per ton, d/d station.
SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2-cwt bags.
SODIUM ACETATE 97/98%.—£21 per ton.
SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.
SODIUM BICHROMATE CRYSTALS (CAKE AND POWDER)—3½d. per lb. nett d/d U.K., discount according to quantity. Anhydrous ¾d. per lb. extra.
SODIUM BISULPHITE POWDER, 60/62%.—£16 10s. per ton delivered 1-cwt. iron drums for home trade.
SODIUM CHLORATE.—2¾d. per lb.
SODIUM CHROMATE.—3¾d. per lb. d/d U.K.
SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.
SODIUM PHOSPHATE.—£14 10s. per ton, f.o.r. London, casks free.
SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.
SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d address in bags.
SODIUM SULPHIDE SOLID, 60/62%.—Spot, £10 5s. per ton d/d station in drums. Crystals—Spot, £7 10s. per ton d/d station in returnable casks.
SODIUM SULPHITE, PEA CRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs. Commercial—Spot, £9 per ton, d/d station in bags.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—5d. to 6½d. per lb. Crude 60's 1s. to 1s. 1d. per gall. August/December.
ACID CRESYLIC 99/100.—1s. 10d. to 2s. per gall. B.P., 3s. 6d. per gall. 97/99.—Refined, 2s. 2d. to 2s. 3d. per gall. Pale, 98%, 1s. 8d. to 1s. 9d. Dark, 1s. 4d. to 1s. 4½d.
ANTHRACENE OIL, STRAINED (GREEN OIL).—4½d. to 4¾d. per gall.
BENZOLE.—Prices at works: Crude, 7½d. to 8½d. per gall.; Standard Motor, 1s. 3d. to 1s. 4d. per gall.; 90%, 1s. 4½d. to 1s. 5½d. per gall.; Pure, 1s. 7½d. to 1s. 8½d. per gall. (The above prices were operative from October 21 last).
TOLUOLE.—90%, 1s. 9d. to 1s. 10d. per gall. Pure, 1s. 11d. to 2s. per gall.
XYLOL.—1s. 8d. to 1s. 9d. per gall. Pure, about 1s. 11d. per gall.
CREOSOTE.—Standard specification, for Export, 5½d. per gall. f.o.b.; for Home, 4d. per gall. d/d.
NAPHTHA.—Solvent, 90/160, 1s. 3d. per gall. Solvent, 95/160, 1s. 4d. to 1s. 5d. per gall. Solvent, 90/190, 1s. to 1s. 2d. per gall.
NAPHTHALENE.—Purified Crystals, £11 11s. per ton.
PITCH.—Medium soft, 45s. per ton, in bulk at makers' works.
PYRIDINE.—90/140, 3s. 6d. to 3s. 9d. per gall. 90/160, 3s. 3d. to 3s. 9d. per gall. 90/180, 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:—

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
ACID ANTHRANILIC.—6s. per lb. 100%.
ACID GAMMA.—Spot, 3s. 6d. per lb. 100% d/d buyer's works.
ACID H.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.
ACID NAPHTHIONIC.—1s. 2d. per lb. 100% d/d buyer's works.
ACID NEVILLE AND WINTHER.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.
ACID SULPHANILIC.—Spot, 8½d. per lb. 100% d/d buyer's works.
ANILINE OIL.—Spot, 8½d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8½d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—Spot, 1s. 8d. per lb., packages extra, d/d buyer's works.
BENZIDINE BASE.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.
BENZOIC ACID.—Spot, 1s. 8½d. per lb. d/d buyer's works.
o-CRESOL 30/31° C.—£2 6s. 5d. per cwt., in 1-ton lots.
m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.
p-CRESOL 34·5° C.—1s. 9d. per lb., in ton lots.
DICHLORANILINE.—2s. 5d. per lb.
DIMETHYLANILINE.—Spot, 1s. 6d. per lb., packages extra d/d buyer's works.
DINITROBENZENE.—7½d. per lb.
DINITROCHLORBENZENE.—£74 per ton d/d.
DINITROTOLUENE.—48/50° C., 7d. per lb.; 66/68° C., 7¾d. per lb.
DIPHENYLAMINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
a-NAPHTHOL.—Spot, 1s. 11d. per lb. d/d buyer's works.
B-NAPHTHOL.—Spot, £65 per ton in 1 ton lots, d/d buyer's works.
a-NAPHTHYLAMINE.—Spot, 1s. per lb. d/d buyer's works.
B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.
o-NITRANILINE.—5s. 11d. per lb.
m-NITRANILINE.—Spot, 2s. 6d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 6½d. per lb., 5-cwt. lots, drums extra, d/d buyer's works.
NITRONAPHTHALENE.—9d. per lb.
R. SALT.—Spot, 2s. per lb. 100% d/d buyer's works.
SODIUM NAPHTHIONATE.—Spot, 1s. 6d. per lb. 100% d/d buyer's works.
o-TOLUIDINE.—Spot, 8d. per lb., drums extra, d/d buyer's works.
p-TOLUIDINE.—Spot, 1s. 6d. per lb. d/d buyer's works.
m-XYLIDINE ACETATE.—3s. 4d. per lb., 100%.

Wood Distillatio Products

ACETATE OF LIME.—Brown, £7 10s. to £8 per ton. Grey, £14 to £15 per ton. Liquor, 9d. per gall.
ACETONE.—£74 to £75 per ton.
CHARCOAL.—£6 5s. to £8 3s. per ton, according to grade and locality.
IRON LIQUOR.—10d. to 1s. 2d. per gall.
RED LIQUOR.—8d. to 10d. per gall.
WOOD CREOSOTE.—1s. 9d. per gall., unrefined.
WOOD NAPHTHA, MISCIBLE.—2s. 11d. to 3s. 1d. per gall. Solvent, 4s. per gall.
WOOD TAR.—£4 5s. per ton.
BROWN SUGAR OF LEAD.—£37 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 2d. per lb. according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.
ARSENIC SULPHIDE, YELLOW.—1s. 8d. to 1s. 10d. per lb.
BARYTES.—£6 to £7 10s. per ton, according to quality.
CADMIUM SULPHIDE.—4s. 6d. to 5s. per lb.
CARBON BISULPHIDE.—£26 to £28 per ton, according to quantity; drums extra.
CARBON BLACK.—3¼d. to 4 1/16d. per lb., ex wharf.
CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity. drums extra.
CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—2s. 6d. per lb.
INDIARUBBER SUBSTITUTES, WHITE.—4¾d. to 5½d. per lb.; Dark, 4½d. to 5d. per lb.
LITHOPONE, 30%.—£20 to £22 per ton.
SULPHUR.—£9 10s. to £13 per ton, according to quality.
SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£55 to £60 per ton, according to quantity.

VERMILION, PALE OR DEEP.—6s. 6d.-7s. per lb.
ZINC SULPHIDE.—8d. to 11d. per lb.

Pharmaceutical and Photographic Chemicals

ACETANILIDE.—1s. 4d. per lb. for 1-cwt. lots.
ACID, ACETIC, PURE, 80%.—£37 5s. per ton d/d address U.K. in casks.
ACID, ACETYL SALICYLIC.—2s. 7d. to 2s. 9d. per lb., according to quantity.
ACID, BENZOIC B.P.—1s. 10d. per lb., for synthetic product. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz.; 50-oz. lots, 1s. 3d. per oz.
ACID, BORIC B.P.—Crystal, £31 per ton; powder, £32 per ton; For one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 1d. to 1s. 1½d. per lb., less 5%.
ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.
ACID, MOLYBDIC.—5s. 3d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.
ACID, SALICYLIC, B.P. PULV.—1s. 5d. to 1s. 8d. per lb. Technical.—1s. to 1s. 2d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 0½d. per lb., less 5%.
AMIDOL.—7s. 6d. to 11s. 3d. per lb., according to quantity.
AMMONIUM BENZOATE.—3s. 9d. per lb.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5-cwt. casks. Resublimated, 1s. per lb.
AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ARGENT. NITRAS, CRYSTALS.—1s. 1d. per oz.
ATROPHINE SULPHATE.—8s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BISMUTH CARBONATE.—8s. per lb
BISMUTH CITRATE.—7s. 6d. per lb.
BISMUTH SALICYLATE.—7s. 3d. per lb.
BISMUTH SUBNITRATE.—6s. 6d. per lb.
BISMUTH NITRATE.—Cryst. 5s. per lb.
BISMUTH OXIDE.—9s. 10d. per lb.
BISMUTH SUBCHLORIDE.—9s. 7d. per lb.
BISMUTH SUBGALLATE.—7s. 3d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts. 11d. per lb. Liquor Bismuth B.P., in W. Qts., 1s. 2d. per lb.; 6 W. Qts., 11½d. per lb.; 12 W. Qts', 10d. per lb.; 36 W. Qts., 9½d. per lb.
BORAX B.P.—Crystal, £21 10s. per ton; powder, £22 per ton; for one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
BROMIDES.—Ammonium, 1s. 9d. per lb.; potassium, 1s. 4½d. per lb.; granular, 1s. 5d. per lb.; sodium, 1s. 7d. per lb. Prices for 1-cwt. lots.
CAFFEIN, PURE.—6s. 6d. per lb.
CAFFEIN CITRAS.—5s. per lb.
CALCIUM LACTATE.—B.P., 1s. to 1s. 4d. per lb., in 1-cwt. lots.
CAMPHOR.—Refined flowers, 2s. 10d. to 3s. per lb., according to quantity; also special contract prices.
CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.
EMETINE HYDROCHLORIDE.—58s. 6d. per oz.
EMETINE BISMUTH IODIDE.—33s. per oz.
EPHEDRINE, PURE.—12s. 6d. to 13s. 6d. per oz.
EPHEDRINE HYDROCHLORIDE.—9s. 9d. to 10s. 6d. per oz
EPHEDRINE SULPHATE.—9s. 9d. to 10s. 6d. per oz.
ERGOSTEROL.—2s. 6d. per gm.
ETHERS.—S.G. ·730—1s. to 1s. 1d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels, ex wharf.
GLUCOSE, MEDICINAL.—1s. 6d. to 2s. per lb. for large quantities.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—27s. 6d. per oz.
HYDRASTINE HYDROCHLORIDE.—90s. per oz. for small quantities.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 3s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 11d. to 3s. 4d. per lb.; potassium, 3s. 2d. to 3s. 7d. per lb.; sodium, 3s. 1d. to 3s. 6d. per lb.; fo r28-lb. lots.
IRON AMMONIUM CITRATE.—B.P., 1s. 11d. per lb., for 28-lb. lots. Green, 2s. 6d. per lb., list price. U.S.P., 2s. 9d. per lb. list price.
IRON PERCHLORIDE.—18s. to 20s. per cwt. according to quantity.
IRON QUININE CITRATE.—B.P., 8¼d. to 8¾d. per oz., according to quantity.
MAGNESIUM CARBONATE.—Light B.P., 36s. per cwt.
MAGNESIUM OXIDE.—Light Commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 13s. 6d. per lb. net; Synthetic, 8s. 6d. to 12s. per lb.; Synthetic detached crystals, 8s. 6d. to 10s. per lb., according to quantity; Liquid (95%), 9s. per lb.
MERCURIALS B.P.—Up to 1-cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 5d. per lb.
PARAFORMALDEHYDE.—1s. 8d. per lb.
PARALDEHYDE.—1s. 1d. per lb.
PHENACETIN.—3s. 9d. to 4s. 1d. per lb.
PHENOLPHTHALEIN.—5s. 11d. to 6s. 1½d. per lb.
PILOCARPINE NITRATE.—10s. 6d. per oz.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—85s. 6d. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P., 1s. 9d. per lb. for 28-lb. lots.
POTASSIUM FERRICYANIDE.—1s. 7½d. per lb., in 125-lb. kegs.
POTASSIUM IODIDE.—16s. 8d. to 17s. 9d. per lb., as to quantity.
POTASSIUM METABISULPHITE.—50s. per cwt. d/dLondon, kegs free.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. per oz. for 1,000-oz. lots.
QUINOPHAN.—B.P.C., 14s. 6d. to 16s. 6d. per lb. for cwt. lots.
SACCHARIN.—43s. 6d. per lb.
SALICIN.—18s. 6d. per lb.
SODIUM BARBITONUM.—8s. 6d. to 9s. per lb. for 1-cwt. lots.
SODIUM BENZOATE B.P.—1s. 9d. per lb. for 1-cwt. lots.
SODIUM CITRATE.—B.P.C. 1911, 1s. 6d. per lb. B.P.C. 1923, and U.S.P., 1s. 10d. per lb. for 28-lb.. lots.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—85s. per cwt. net, ton lots, d/s of 5 cwt. Crystals, 2s. 6d. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. 2d. per lb. Crystal, 1s. 11d. to 2s. 3d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £29 10s. per ton, according to quantity. Delivered U.K.
STRYCHNINE, ALKALOID CRYSTAL, 2s. per oz.; hydrochloride, 1s. 9½d. per oz.; nitrate, 1s. 8d. per oz.; sulphate, 1s. 9d. per oz., for 1,000-oz. quantities.
TARTAR EMETIC, B.P.—Crystal or powder, 1s. 9d. to 2s. per lb.
THYMOL.—Puriss, 7s. 3d. to 8s. per lb., according to quantity. Natural, 12s. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—9s. per lb.
AMYL ACETATE.—2s. 3d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL CINNAMIC ALDEHYDE.—9s. per lb.
AMYL SALICYLATE.—2s. 6d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 9d. per lb
BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 9d. per lb.
BENZYL BENZOATE.—2s. 4d. per lb.
CINNAMIC ALDEHYDE NATURAL.—11s. 9d. per lb.
COUMARIN.—12s. per lb.
CITRONELLOL.—6s. 6d. per lb.
CITRAL.—6s. 6d. per lb.
ETHYL CINNAMATE.—6s. 9d. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—8s. 9d. per lb.
GERANIOL.—6s. to 10s. per lb.
HELIOTROPINE.—5s. 9d. per lb.
PHENYL ETHYL ACETATE.—10s. per lb.
PHENYL ETHYL ALCOHOL.—8s. 6d. per lb.
RHODINOL.—38s. 6d. per lb.
SAFROL—1s. 3d. per lb.

Prices of Essential Oils

ANISE OIL.—3s. 3d. per lb.
BERGAMOT OIL.—8s. 9d. per lb.
BOURBON GERANIUM OIL.—14s. per lb.
CAMPHOR OIL.—White, 1s. 9d. per lb.; Brown, 1s. 3d. per lb.
CASSIA OIL, 80/85%.—4s. per lb.
CINNAMON OIL LEAF.—5s. 6d. per oz.
CITRONELLA OIL.—Java, 2s. 2d. per lb., c.i.f. Pure Ceylon, 2s. per lb.
CLOVE OIL, 90/92%.—7s. 6d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, 9s. per lb.
LEMON OIL.—4s. per lb.
LEMONGRASS OIL.—3s. per lb.
PALMA ROSA OIL.—10s. per lb.
PEPPERMINT OIL.—Japanese, 4s. 6d. per lb.
PETITGRAIN.—6s. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co. Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, February 6, 1931.

CONDITIONS have been more active during the current week with an improved demand in most directions. Export business has also been satisfactory.

General Chemicals

ACETONE.—£60/65 per ton according to quantity, with a satisfactory demand.

ACID ACETIC.—Firm at £36 5s. to £38 5s. per ton for technical 80%, and £37 5s. to £30 5s. for pure 80% and in steady request.

ACID CITRIC.—Weak at about 1s. 1½d. to 1s. 2d. per lb., less 5%.

ACID FORMIC.—In steady request at £38 5s. per ton for 85% technical.

ACID LACTIC.—Continues firm at £41 to £42 per ton for 50% by weight pale quality.

ACID OXALIC.—In steady demand at £30 7s. 6d. to £42 per ton according to quantity.

ACID TARTARIC.—Unchanged at about 1s. 0½d. to 1s. 1¼d. per lb, less 5% according to quantity.

SULPHATE OF ALUMINA.—£7 15s. to £8 5s. per ton for 17/18% iron free quality.

ARSENIC.—Unchanged at about £19 to £19 10s. per ton.

CREAM OF TARTAR.—Steady at 87s. 6d. per cwt., ex warehouse London.

COPPER SULPHATE.—£22 to £22 10s. per ton, less 5%, free on rails London.

FORMALDEHYDE.—£30 10s. to £31 per ton and in steady request.

LEAD ACETATE.—In a little better demand at £34 15s. per ton for white, and £33 15s. per ton for brown.

LEAD NITRATE.—Quiet at £29 10s. per ton.

LITHOPONE.—Continues unchanged at £18 to £22 per ton.

POTASH BICHROMATE.—Unchanged and firm at 4¼d. per lb., with the usual discounts for contracts.

PERMANGANATE OF POTASH NEEDLE CRYSTALS.—5½d. per lb., and in steady request.

SODA BICHROMATE.—Continues firm at 3½d. per lb., with usual discounts for contracts.

SODA CHLORATE.—Very firm at about £26 10s. and in good request.

SODA HYPO COMMERCIAL.—£8 10s. per ton; photographic crystals £14 5s. per ton.

SODIUM SULPHIDE.—Unchanged at £10 5s. to £11 5s. per ton for solid, and £1 per ton extra for broken, carriage paid.

TARTAR EMETIC.—Continues quiet at about 11d. per lb.

ZINC SULPHATE.—Unchanged at £11 to £11 10s. per ton.

Coal Tar Products

There is no change to report in the Coal Tar Products market. Conditions remain the same and prices are unchanged from last week.

MOTOR BENZOL.—Remains at about 1s. 5½d. to 1s. 6½d. per gallon, f.o.r.

SOLVENT NAPHTHA.—Unchanged at about 1s. 2½d. to 1s. 3d. per gallon.

HEAVY NAPHTHA.—Worth about 1s. 1d. per gallon, f.o.r.

CREOSOTE OIL.—Remains at about 3d. to 3½d. per gallon, f.o.r. in the North, and at 4d. to 4½d. per gallon in London.

CRESYLIC ACID.—Unchanged at 1s. 8d. per gallon for the 98/100% quality, and at 1s. 6d. per gallon for the dark quality 95/97%.

NAPHTHALENES.—Quoted at £3 10s. to £3 15s. per ton for the firelighter quality, at about £4 to £4 5s. per ton for the 74/76 quality, and at about £5 per ton for the 76/78 quality.

PITCH.—Worth 37s. 6d. to 42s. 6d. per ton, f.o.b. East Coast port.

The following additional information has been received :—

CARBOLIC ACID.—Business is quiet with prices unchanged—5-ton lots at 5½d. per lb. and smaller quantities at 6½d. per lb., all in bulk packing.

CRESYLIC ACID.—This has been a difficult market of late, and in some quarters the absence of business has led to the acceptance of very low prices. Generally speaking, the market is down about one penny or so per gallon, and today's values may be put as follows :—97/99%, 1s. 7d. to 1s. 8d.; 98/100%, 1s. 8d. to 1s. 10d. per gallon. Refined grades, 2s. to 2s. 2d., with dark 95% about 1s. 5d. to 1s. 6d., all prices naked at works.

Nitrogen Fertilisers

SULPHATE OF AMMONIA.—*Export.*—The market continues quiet and prices are unchanged. *Home.*—The demand has improved slightly in the South, but weather conditions have affected sales in the Midlands and North.

NITRATE OF SODA.—Scale prices are being maintained, but the market continues quiet.

Latest Oil Prices

LONDON, February 4.—LINSEED OIL was very firm at 15s. to 20s. advance. Spot, £18 10s.; February, £17 7s. 6d.; March-April, £17 10s.; May-August, £17 17s. 6d.; September-December, £18 5s. naked. RAPE OIL was inactive. Crude extracted, £29; technical refined, £30 10s., naked, ex wharf. COTTON OIL was quiet. Egyptian crude, £17; refined common edible, £21 10s.; deodorised, £23 10s., naked, ex mill. TURPENTINE was firm and 9d. per cwt. higher. American, spot, 36s. 3d.; March-April, 36s. 9d.; and Russian, spot, 33s. 9d.

HULL.—LINSEED OIL.—Spot, £17 15s.; February to August £17 5s.; September-December, £17 17s. 6d. per ton, naked; Baltic spot, unquoted. COTTON OIL.—Egyptian, crude, spot, £17 10s.; technical, spot, £20; edible, refined, spot, £20; deodorised, £22 per ton, naked. CASTOR OIL.—Spot, 39s. 6d.; firsts, 34s. 6d.; and seconds, 32s. 6d. per ton. PALM KERNEL OIL.—Crude, 5½ per cent. spot, £23 per ton, naked. GROUNDNUT OIL.—Crushed/extracted, spot, £23 10s.; deodorised, £27 10s. per ton. SOYA OIL.—Extracted/crushed, spot £20 10s.; deodorised, £24 per ton. RAPE OIL.—Crushed/extracted, spot, £28 10s.; refined, spot, £30 10s. per ton. COD OIL, 18s. 6d. per cwt. TURPENTINE.—Spot, 37s. 6d. per cwt.

South Wales By-Products

THERE is scarcely any change in South Wales by-product activities. The demand for most products is slow and sporadic, and there are no indications of an early improvement. Pitch is in slightly better request, but business continues to be confined to small, prompt parcels. Road tar has a fair and steady call round about 13s. per 40-gallon barrel. Refined tars have a fair call, with values unchanged for coke-oven and gasworks tar. Solvent naphtha has a slightly better demand, but heavy is slow. Values of both products are unchanged. Patent fuel and coke exports are fair. Patent fuel prices, for export, are : 21s. to 21s. 6d., ex-ship Cardiff; 20s., ex-ship Swansea and Newport. Coke prices are : Best foundry, 34s. to 36s. 6d.; good foundry, 22s. 6d. to 25s.; furnace, 17s. 6d. to 18s.

Scottish Coal Tar Products

CONDITIONS have been quiet in this area during the week. Forward business is dull and any orders for prompt delivery are only for comparatively small quantities. The better grades of creosote oil are not too plentiful, and prices are steady accordingly.

Cresylic Acid.—The reduction reported last week has not yet resulted in an increased turnover. Pale, 99/100 per cent., 1s. 6½d. to 1s. 7½d. per gallon; pale, 97/99 %, 1s. 5½d. to 1s. 6½d. per gallon; dark, 97/99%, 1s. 4½d. to 1s. 5½d. per gallon; high boiling, 1s. 7d. to 1s. 9d. per gallon; all f.o.r. naked.

Carbolic Sixties.—No business is being transacted and value is nominal at 1s. 6d. to 1s. 8d. per gallon for "under 5% water" grades.

Creosote Oil.—Quotations remain steady. Specification oil, 2½d. to 2¾d. per gallon; gas works ordinary, 3¼d. to 3¾d. per gallon; washed oil, 3d. to 3¼d. per gallon; all f.o.r. works in bulk.

Coal Tar Pitch.—Few orders are being received and value is easy at 42s. 6d. per ton f.a.s. Glasgow for export and about 45s. per ton f.o.r. works for home trade.

Blast Furnace Pitch.—Controlled prices remain at 30s. per ton f.o.r. works for home trade, and 35s. per ton f.a.s. Glasgow for export.

Refined Coal Tar.—Makers' prices are inclined to be easy at 2¾d. to 3d. per gallon, ex works in buyers' barrels.

Blast Furnace Tar remains unchanged at 2¾d. per gallon.

Crude Naphtha.—With production low, prices are steady at 4¼d. to 4½d. per gallon.

Water White Products.—Orders are scarce. Motor benzol is 1s. 4d. to 1s. 4½d. per gallon; 90/160 solvent, 1s. 2½d. to 1s. 3½d. per gallon; 90/190 heavy solvent, 1s. ½d. to 1s. 1d. per gallon; all f.o.r. works in bulk.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.*

Glasgow, February 3, 1931.

THERE is continued improvement in the Scottish heavy chemical market, considerable activity being recorded particularly in the number of inquiries.

Industrial Chemicals

ACETONE.—B.G.S.—£60 to £63 per ton, ex wharf, according to quantity.

ACID, ACETIC.—Prices ruling are as follows: glacial, 98/100%, £47 to £58 per ton; pure, £37 5s. per ton; technical, 80%, £36 5s., delivered in minimum lots of 1 ton.

ACID, BORIC.—Granulated commercial, £22 per ton; crystals, £23; B.P. crystals, £31 per ton; B.P. powder, £32 per ton, in 1-cwt. bags, delivered Great Britain free in one-ton lots upwards.

ACID, HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. per carboy, ex works, full wagon loads.

ACID, NITRIC, 80° QUALITY.—£23 per ton, ex station, full truck loads.

ACID, OXALIC.—98/100%.—On offer at the same price, viz.: 3¼d. per lb., ex store. On offer from the Continent at 3¼d. per lb., ex wharf.

ACID, SULPHURIC.—£3 7s. 6d. per ton, ex works, for 144° quality; £5 15s. per ton for 168°. Dearsenicated quality, 20s. per ton extra.

ACID, TARTARIC, B.P. CRYSTALS.—Quoted 11¾d. per lb., less 5%, ex wharf. On offer for prompt delivery from the Continent at 1s. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—Quoted round about £8 10s. per ton, ex store.

ALUM, LUMP POTASH.—Now quoted £8 7s. 6d. per ton., c.i.f. U.K. ports. Crystal meal, about 2s. 6d. per ton less.

AMMONIA ANHYDROUS.—Quoted 10¼d. per lb., containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton. Powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID, 80°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Spot material obtainable at round about £28 per ton, ex wharf. On offer for shipment from China at about £27 per ton, c.i.f. U.K.

ARSENIC, WHITE POWDERED.—Quoted £22 10s. per ton, ex wharf, prompt shipment from mines. Spot material still on offer at £22 15s. per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £9 10s. per ton, c.i.f. U.K. ports. For Continental materials our price would be £8 10s. per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 15s. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £4 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—At about £3 15s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Now quoted £33 per ton, ex store. Continental on offer at about £32 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 per ton, ex wharf.

LEAD, RED.—Price now £34 per ton, delivered buyers' works.

LEAD, WHITE.—Quoted £46 per ton, carriage paid.

LEAD, ACETATE.—White crystals quoted round about £38 to £39 per ton ex wharf. Brown on offer at about £2 per ton less.

MAGNESITE.—GROUND CALCINED.—Quoted £9 7s. 6d. per ton, ex store.

METHYLATED SPIRIT.—Industrial quality 64 o.p. quoted 1s. 8d. per gallon less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4½d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer, £25 10s. per ton ex store. Offered from the Continent at £24 15s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100% POWDER.—Quoted £25 per ton ex store; crystals 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £20 17s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted 7d. per lb. ex store. Offered for prompt delivery from the Continent at about 6¾d. per lb. ex wharf.

SODA CAUSTIC.—Powdered 98/99%, £17 10s. per ton in drums, £18 15s. in casks. Solid 76/77% £14 10s. per ton in drums, £14 12s. 6d. per ton for 70/72% in drums, all carriage paid buyer's station, minimum four-ton lots. For contracts 10s. per ton less.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3½d. per lb., delivered buyer's premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 7s. 6d. per ton extra. Light soda ash, £7 13s. per ton, ex quay, minimum four-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 2s. 6d. per ton, ex station, minimum four-ton lots. Pea crystals on offer at £15 per ton, ex station, minimum four-ton lots.

SODIUM NITRATE.—Chilean producers now offer at £10 per ton, carriage paid, buyer's sidings, minimum six-ton lots.

SODIUM PRUSSIATE.—Quoted 5¼d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward.

SODIUM SULPHATE (SALTCAKE).—Price, 60s. per ton, ex works; 65s. per ton, delivered for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: solid 61/62%, £10 per ton; broken, 60/62%, £11 per ton; crystals 30/32%, £8 2s. 6d. per ton, delivered buyers' works on contract, minimum four-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £9 per ton, ex store.

ZINC CHLORIDE 98%.—British material now offered at round about £19 per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Netherlands Consumption of Drugs and Chemicals

GREAT BRITAIN supplied 3,806 tons of chemicals and drugs to the Netherlands during the third quarter of 1930, out of that country's total imports in this section of 34,824 tons. Germany, with 34,824 tons, was the principal supplier; France supplied 8,044 tons; the United States, 2,339 tons; Belgium, 1,839; Sweden, 1,051; Switzerland, 1,017; and Greece, 932 tons. Exports of chemicals and drugs for the third quarter amounted to 38,645 tons, of which 8,723 went to the United States, 8,692 tons to Germany, 5,984 tons to Great Britain, 4,642 tons to Finland, 3,883 to Sweden, and 1,513 to the Netherlands East Indies.

British Colour Council Appointment

THE appointment was announced on Monday of Mr. R. F. Wilson, a member of the staff of the Nottingham School of Art, as general manager and secretary of the British Colour Council, which was recently formed to co-ordinate and standardise the names and use of colours in connection with the clothing and allied trades.

It is stated on behalf of the Council that "important steps which promise to have far-reaching effects on fashions and colours are being taken by the Council. Skilled observers in practically all parts of the world will report on colour tendencies to aid research work in this country."

Notes on the Cinchona Industry

THE Institute of Chemistry has published in pamphlet form Mr. Bernard F. Howard's Streatfeild Memorial Lecture (1930), under the title *Some Notes on the Cinchona Industry*. The lecture was delivered before the Institute of Chemistry and past students of Finsbury Technical College, on November 21, 1930, with Mr. A. J. Chapman in the chair. Within a comparatively limited space and in clear and simple terms, the lecture gives an interesting historical sketch of the subject and deals adequately with its chemical and medical sides.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, February 5, 1931.

Although actual business in chemical products on this market during the past week has been somewhat patchy in character, with the bulk of transactions on a relatively small scale, there has been a fair amount of general inquiry in circulation. Much of this may be regarded in the nature of feelers, but, taking the market as a whole, buyers are finding themselves up against a steady to firm price position, the really weak spots being comparatively few. A settlement of the lockout in the weaving section of the cotton trade here is not yet in sight and its depressing influence is extending in some respects to business in chemicals.

Heavy Chemicals

There is a fair contract movement of alkali, which is firm at about £6 5s. per ton, and also in caustic soda, the various qualities of which are quoted at from £12 15s. to £14 per ton, in contract commitments. Phosphate of soda keeps fairly steady, although only a quiet business has been experienced this week; values are at about £10 per ton for the dibasic material. Sulphide of sodium is in moderate movement at from £9 10s. to £10 per ton for the 60-65 per cent. concentrated solid quality and £8 10s. for the commercial grade. A fair trade is passing in the case of bicarbonate of soda and quotations keep firm at round £10 10s. per ton. There has been no alteration in the price position of bichromate of soda, which is on the basis of 3½d. per lb., less 1 to 2½ per cent., according to quantity, moderate sales being reported. Prussiate of soda meets with a quietly steady demand and quotations are well held at from 4¾d. to 5¼d. per lb., according to quantity. Inquiry for hyposulphite of soda is not particularly active, but prices keep reasonably steady at from £9 5s. to £9 10s. per ton for the commercial quality and round £15 per ton for the photographic. A moderate movement is reported in respect of chlorate of soda, offers of which are at round £26 10s. per ton. With regard to saltcake, fair deliveries of this material are being made at about £3 per ton.

The demand for permanganate of potash this week has been quiet, but prices are maintained at about 5½d. per lb. for the B.P. grade and 5⅛d. for the commercial material. Yellow prussiate of potash is firm at from 6¾d. to 7¼d. per lb., according to quantity, a moderate trade being done. Caustic potash is in quietly steady request and values have been pretty well maintained at from £28 10s. to £29 per ton. A fair inquiry is reported in the case of bichromate of potash, quotations for which are on the basis of 4¼d. per lb., less 1 to 2½ per cent., according to quantity. Chlorate of potash is maintained at about £27 10s. per ton, but business is only of moderate dimensions. There is a quiet demand about for caustic potash, with current values in the neighbourhood of £25 per ton.

Sulphate of copper prices are maintained at about £21 per ton, f.o.b., but buyers are operating cautiously and the volume of business is below normal. The demand for arsenic is on moderate lines with values firm at about £19 10s. per ton, at the mines for white powdered, Cornish makes. The demand for the acetates of lime is slow, with the grey material at the top price of £14 per ton and brown at about £7 5s. The acetates of lead keep up at from £33 10s. to £34 15s. per ton for the brown quality and from £33 17s. 6d. to £35 15s. for the white, both according to quantity. Nitrate of lead is a very moderate trade at round £29 per ton.

Acids and Tar Products

Inquiry for oxalic acid during the past week has been rather slow, but at about £1 12s. per cwt., ex store, there has been no change in prices. Tartaric acid is in quiet request at round 11½d. per lb., with citric acid quoted at about 1s. 2d. per lb. Acetate acid keeps firm and a fair business is being done; the commercial 80 per cent. quality is on offer at £37 per ton and the glacial at £51.

The demand in the by-products section has been quiet in most lines, with pitch easy in tendency at from 38s. to 40s. per ton, f.o.b., and creosote oil quoted at from about 3d. to 4¼d. per gallon, naked, according to grade. There has been little, if any, improvement in sales of crystal carbolic, which is quoted at about 5d. per lb., f.o.b., with crude 60's weak at 1s. 3d. per gallon, naked. Solvent naphtha is in moderate request at about 1s. 2d. per gallon, naked.

Company News

International Nickel Co. of Canada, Ltd.—The directors have decided to reduce the annual dividend rate on the common shares from $1 per share to 60 cents.

Barrow, Hepburn and Gale.—The net profit for 1930 is stated to be £57,767. A dividend of 6 per cent., less tax, is payable on the preference shares, leaving a balance of £9,135 to be carried forward.

Du Pont de Nemours Co.—For the year 1930 the annual report shows that earnings applicable to common stock totalled $49,990,000, or $4·64 per share, compared with $72,300,000, or $7·09 per share in 1929.

South Metropolitan Gas Co.—The receipts for the year to December 31, 1930, amounted to £4,382,207, against £4,469,758 in 1929. Expenses were also lower at £3,813,138, compared with £3,899,148, so that, after crediting interest and dividend received, the net revenue amounts to £615,498, in contrast with £609,690.

English Velvet and Cord Dyers' Association, Ltd.—For the twelve months to December 31 last, a profit of £69,184 is shown. After deducting depreciation, debenture interest and directors' fees, the net profit is £36,549. The year's dividend on the ordinary shares is reduced from 8 to 6 per cent., and £18,243 remains to be carried forward, against £18,395 brought in.

Gas Light and Coke Co.—A slight falling off in revenue is shown in the report for the year to December 31, 1930. After deducting all expenses and including £145,290 brought in, there is an available total of £1,972,943, against £2,057,941, which included £158,657 from the previous year. The dividend on the ordinary stock is maintained at £5 12s. per cent., and £40,000 is again taken to redemption fund. Nothing is taken to special purposes fund, however, which last year received £52,474, and £122,055 remains to go forward.

Redfern's Rubber Works, Ltd.—The report of the directors for the year to December 31 last states that the revenue for the year amounted to £38,652, from which must be deducted depreciation, £7,721, and loan interest, £683, leaving a net profit of £30,247. To this is added the balance brought forward from December 31, 1929, of £17,994. The directors recommend the payment of the final dividends on "A" and "B" preference shares, and a final dividend of 6¼ per cent. on the ordinary shares (making with the interim dividend 10 per cent. for the year); placing to reserve fund £9,000, and leaving to be carried forward, £13,741. The annual meeting will be held on February 14 at 11 a.m. at Dawson Street, Hyde.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

British India.—A firm of agents in Lahore, interested in railway supplies, etc., desires to represent British manufacturers of oils and greases, acids and caustic soda. (Ref. No. 78.)

Spain and Portugal.—An agent of good standing in Lisbon wishes to represent a British manufacturer of creosote. (Ref. No. 99.)

Tariff Changes

Poland.—The duty on hydrogen peroxide has been increased from 104 to 210 zlote per 100 kilogs. The following reductions in the normal duty payable are in force until June 30 next: Potassium permanganate for all industrial purposes, reduced 20 per cent.; organic chemical products, not specially mentioned in Tariff, used as chemical reagents for treating zinc ores, reduced 10 per cent.; wood oil, reduced 15 per cent.

Salvador.—Reduced import duties have been prescribed for mineral creosote (from coal) and a new heading has been raised in the Tariff for industrial oils.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides tha every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

LIMESTONE PRODUCTS, LTD., Llandebie. (M., 7/2/31.) Registered January 23, debenture to Lloyds Bank Ltd., securing all moneys due or to become due to the Bank; charged on property at St. George (Denbigh), also general charge. *Nil. December 31, 1929.

PILCHERS, LTD., London, S.E., paint manufacturers. (M., 7/2/31.) Registered January 20, £25,000 debentures; charged on property at Morgans Lane, Tooley Street, S.E., also general charge.

Satisfactions

GOODALL BATES AND CO., LTD., Newcastle-on-Tyne, oil refiners. (M.S., 7/2/31.) Satisfaction registered January 26, £1,000 registered November 12, 1906.

LEVER BROTHERS, LTD., Port Sunlight, soap manufacturers. (M.S., 7/2/31.) Satisfaction registered January 22, £147,000, part of amount registered April 13, 1921.

PILCHERS, LTD. (old company), London S.E., paint manufacturers. (M.S., 7/2/31.) Satisfaction registered January 22, £20,000, outstanding July 1, 1908.

London Gazette, &c.

Companies Winding Up Voluntarily

BRAND POWDERED FUEL SYSTEM, LTD. (C.W.U.V., 7/2/31.) By reason of its liabilities, January 26. Creditors claim by March 9, to the liquidator, G. S. Farebrother, 16, Albemarle Street, W.1.

KOHINOOR COPRA, OIL AND TRADING CO., LTD. (C.W.U.V., 7/2/31.) Creditors' claims to T. H. Fraser, of 11A, Hart Street. London, W.C.1, liquidator of the company.

MUSKER PULVERIZED COAL SYNDICATE, LTD. (C.W.U.V., 7/2/31.) By reason of its liabilities, January 26. C. E. Harper, of 3-4, Clements Inn, London, W.C.2, appointed as liquidator.

NEW ZEALAND SULPHUR CO., LTD. (C.W.U.V., 7/2/31.) Statutory meeting of creditors at Winchester House, Old Broad Street, London, E.C.2 (Room No. 43), on February 26, 1931, at 12.30 p.m.

RIVERSIDE DYEING AND FINISHING CO., LTD. (C.W.U.V., 7/2/31.) Statutory meeting of creditors at the Chartered Accountants Hall, Spring Gardens, Manchester, on Monday, February 9, at 4.30 p.m.

WELLINGBOROUGH CHROME TANNING CO., LTD. (C.W.U.V., 7/2/31.) By special resolution, January 23. Creditors' claims to liquidator by March 16. L. G. Roberts, Boots Chambers, 27, High Street, Rushden, Northampton, appointed as liquidator.

Company Winding Up

J. M. NEWTON VITREO-COLLOID (1928), LTD. (C.W.U. 7/2/31.) H. C. Waddington, 11, Waterloo Place, Pall Mall, London, S.W.1, appointed as liquidator, January 20.

New Companies Registered

BOEHRINGER CORPORATION (LONDON), LTD.—Registered January 23. Nominal capital £1,000 in £1 shares. Manufacturers, dealers, craftsmen and workers in connection with celluloid, galalith, imitation ivory, vulcanite, xylonite, and any other allied products, preparations, goods, manufactures and compounds, including their respective chemical or other ingredients, also nitrocellulose for use in connection with lacquers, varnishes and the like, etc. A subscriber: H. G. Warner, "Briarwood," Coombe Lane, Kingston Hill.

New Chemical Trade Marks

Applications for Registration

These lists are specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the registration of the following trade marks can be lodged up to February 21, 1931.

PYRALIN.

506,805. Class 1. Pyroxylin enamels in the nature of paints; and pyroxylin and pyroxylin compounds being chemical substances for use in manufactures. Du Pont Viscoloid Co. (a corporation organised and existing under the laws of the State of Delaware), 330, Fifth Avenue, City, County and State of New York, United States of America; manufacturers. October 10, 1929.

CLAYCOL.

518,098. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. H. D. Pochin and Co., Ltd., 13, Worsley Street, Salford, Manchester; manufacturers and merchants. November 25, 1930.

BARYNIT.

518,486. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives, but not including paints and not including any goods of a like kind to paints. I.G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. December 8, 1930.

SOROMIN.

518,488. Class 1. Chemical substances for use as dressing and finishing agents in the manufacture of textile fabrics. I.G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. December 8, 1930.

BIDDIBLACK.

518,743. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Bideford Black, Ltd., 110, Cannon Street, London, E.C.4; manufacturers. December 16, 1930.

PARALENE.

516,280. Class 2. A chemical preparation applied to finished textiles to prevent attack by larvæ, moth and other insects, and for preventing mildew. British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester; manufacturers. September 23, 1930. (By consent.)

RONGAL.

518,487. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. I.G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. December 8, 1931.

The Sticky Point Water of Soils

FROM the Union of South Africa, Department of Agriculture, comes a pamphlet on "the sticky point water of soils," by B. de C. Marchand, B.A., D.Sc., of the Government Chemical Laboratories, Cape Town. The paper describes experiments with the Keen-Raczkowski box and the Keen and Coutts method of determining "the moisture content of soils at the point of maximum plasticity"; that is, the amount of water held by the soil at the point at which the kneaded moist soil just ceases to adhere to external objects. The chemistry of the operation is fully described, accompanied by data tables.

Another paper contains a note on the abnormalities in the composition of oranges, by P. R. v. d. R. Copeman, B.A., D.Sc., of the Government Laboratories, Cape Town. The results of analysis show how widely the fruits from different trees in the same orchard may vary in composition, and how important it is to eliminate trees that bear fruit of abnormal composition.